EDITORIAL

DOMESTIC ENGINEERING

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HOOVER TO ATTEMPT TO STABILIZE BUSINESS.

SECRETARY HOOVER has undertaken another task which, if attended with even a moderate degree of success, will be a wonderful accomplishment. He is attempting to stabilize the business of this country so that there will be no paralyzing depressions or orgies of wild prosperity, neither of which is desirable, but which heretofore have been considered unavoidable. The secretary has divided our business activities into two classes, one having to do with consumable goods, and the other with construction of plant and equipment, houses, public utilities, roads, wharves, bridges, railroad extensions, and other public works. His idea is to regulate a certain percentage of this class of work so that it would be done when business in general is dull and depression threatens. In this way unemployment and extreme business depressions would cease to be national issues. It is pointed out that the Federal Reserve systems of banking has had a remarkable effect in the stabilizing of money, and it is hoped that something of this effect may be accomplished for the business world. It is a big job, but a step in the right direction.

SELLING AND ORDER TAKING.

A PROMINENT Wisconsin plumbing and heating contractor was installing some bathroom fixtures in the home of one of his more prosperous customers, and while around inspecting the work of his men, his customer, Mrs. B—— stated that she had been thinking of having a new sink installed. "Fine, Mrs. B——," said the contractor, "if you will just step into my car I'll drive you over to my showroom, where you can pick out what you want while it is on your mind, and it can be installed while my men are still out here, which will save you a little money."

As they entered the showroom, Mrs. B—— walked over to a small roll rim enameled sink with detachable drain board saying that she did not wish to invest much money in a sink just at that time. The contractor, however, led her over to a beautiful porcelain enameled one-piece apron sink with concealed supports, adjustable legs, right and left drain boards, and a combination faucet with swinging spout, and said, "Mrs. B——, you have shown such excellent taste in the general furnishings of your home, your bathroom fixtures, and everything else, that I should dislike to put in anything that is not in keeping with the general tone. This is really what your taste calls for, and if you do not feel that you can afford to install it just now, better wait a little, because if I install the other sink you will eventually have it replaced with something like this; so you may as well put this in in the first place and save yourself the annoyance and expense of two installations. It will be a constant source of pride and pleasure to you, while the other will always cause a slight annoyance and remind you that some day you are going to have it changed. You will be repaid many times over for the slight additional investment, for it really is an investment."

Needless to say, Mrs. B—— took the better of the two sinks. She has something to be proud of, the contractor also has a job to be proud of, and a good advertisement for himself. He also has a little more money in his pocket. He sold that sink, he didn't just take an order.

ABOUT SEVERAL THINGS.

PRESIDENT HARDING in his Fourth of July speech at Marion, Ohio, referring to the coal and railroad situations, said, "A free American has the right to labor without any other man's leave, and it would be no less an abridgment to deny men the right to collective bargaining." The American public is pretty thoroughly convinced of the soundness of these principles and it can do no harm and probably a little good to remind certain factions of this fact occasionally. From present indications the railroad and coal situations will be settled without any great national inconvenience.

* * *

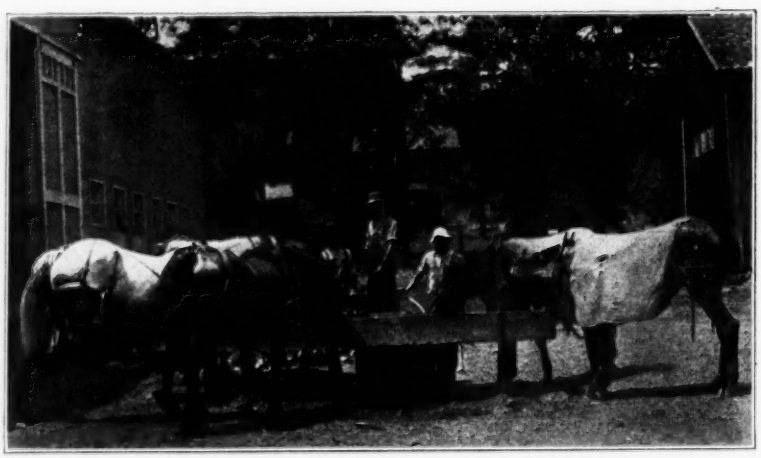
Business men from sixteen countries will attend the second general meeting of the International Chamber of Commerce, which will be held in Rome during the week of March 19, 1923. According to the announcement made recently by the American section of this organization, several hundred representative American business men will be present at these meetings. Possibly the world battles of the future will be fought with merchandise and dollars rather than steel, explosives, and gas. A League of Nations composed of the world's leading business men could prevent wars by refusing to finance them.

BUILD PLUMBING *and* HEATING BUSINESS AMONG FARMERS NOW

More than One-half of the People of the United States Live on Farms or in Small Villages—They Control About a Half of the Buying Power of this Country, but as yet They Have Invested Only Lightly in What the Plumbing and Heating Contractor has to Sell—Much Pioneering has been done—Intensive Development of this Market Should Prove Profitable at this Time

THERE is a vast difference between building a business and getting business that has been created by the efforts of others. The present status of the plumbing and heating business in the cities is the result of many years of hard work by industrious progressive individuals and organizations. Much effort has been made to educate the people of the cities in heating, sanitation and ventilation to the point where they consider modern plumbing, heating, and ventilating equipment absolutely essential to their health, comfort, convenience, and general well being, and there is still much educational work to be done even in those communities that are entitled to be classed as cities.

No big business just happens. People do not suddenly decide that they want certain things that they never had before or that no one else ever had and then go out and ask someone to make it for them. Far from it. It is the business, the industry that continually makes improvements, keeps advancing, and then persistently and forcefully informs the public regarding the merits of its goods and service. Educating the public is essential in the building up of any industry, but it is a slow process, and like the building of Rome, it cannot be done in a day. However, anything that is worth while is worth working for. The world still accepts the principle that, "to the victor belongs the spoils," and in the commercial world this applies also, for to the builder of business belongs the profits. He may build it in a field that already exists, or he may develop new fields. The plumbing and heating industry today is a big one and thousands of men have built up successful businesses in it.



A Water Supply System Makes "Watering the Horses" an Easy Chore for the Farmer.

Up to the present time, however, the plumbing and heating business has been confined chiefly to the cities. This does not mean that there are not a great many plumbing and heating contractors who have built up a most profitable business of this kind outside of the cities, but so far it is a small amount compared with the business done in the cities. There is no good reason why the difference should be as great as it is for only about half of the people of the United States live in cities. The other half lives on farms or in small villages.

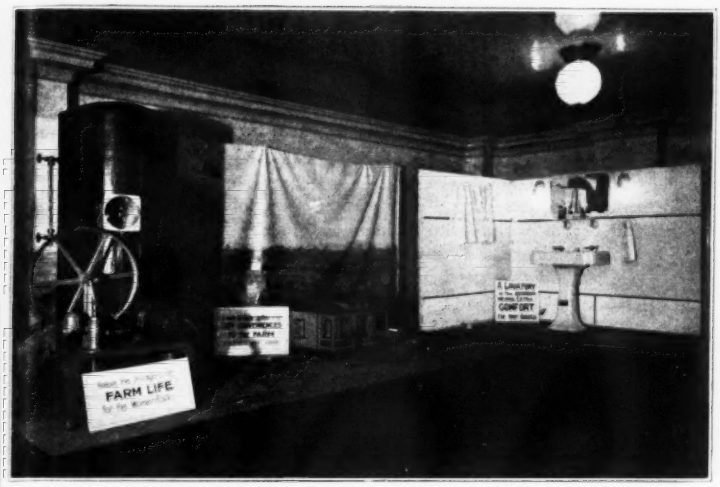
Plumbing and Heating Needed on Farms and in Villages.

Nor can it be argued that modern plumbing and heating are not needed on the farm or in the small villages. The idea once very prevalent, that the people living in the country were much healthier than their city cousins, has been shown in recent years to be decidedly incorrect. There may have been some foundation for this belief in years gone by, but whether or not it ever was true, and whether the present condition is due to the great advances made in the cities in providing modern well regulated heat, sanitation, and ventilation need not be discussed at this time, the fact remains that it is not true now. Careful investigations during the past few years by educational, medical, and welfare associations have thoroughly established the fact that the city bred child is now healthier than his country cousin, and what applies to the school children has been found to be also true of the adults. Diseases such as typhoid have been almost eliminated in the cities, but in the country there are still a great many cases of this disease every year, and almost invariably they occur where sewage has not been properly disposed of, where there is no plumbing, and where the open vault privy still exists.

These are facts which the plumbing and heating industry may well keep in mind in developing business in the country. This industry owes the farmer a service, and that service intelligently rendered will in turn prove profitable business for those who have the foresight and the aggressiveness to develop it.

Running Water on the Farm, the First Requisite.

Before the farmer can have modern plumbing, he must have running water, and to have running water, he should have power in some form. A great many farmers now have electric power supplied by central stations, as the latter in many



A Display at the Ontario Plumbing and Drain Inspectors' Convention in St. Catharines, Designed to Interest the Plumbers in Developing Farm Business. A large Bath-a-Day Sign Decorates the Tank.

cases have found that enough progressive farmers can be found within reasonable distances to make the extension of their service into the country profitable. There are, of course, a great many farmers quite beyond reach of this service, and they must rely on individual power plants, which, as a rule, furnish both power and light. Many thousands of these are being sold every year. In fact, the farm power and light plant business has gotten to be quite an industry in itself during the past few years.

Practical Demonstrations Effective.

Realizing that the farmer must have power before he can buy modern plumbing, various branches of the plumbing and heating industry are now actively engaged in supplying him with power and light plants. Kohler Co., for instance, visualizing the possibilities for the sale of plumbing goods to the farmer, and realizing the necessity of first furnishing him with power, some time ago began the manufacture of an automatic power and light unit which they mounted on a light truck as shown in the accompanying cuts. The company's seventeen branches are supplied with one of these trucks. The plan followed by the dealer, as explained by R. C. Angelbeck, "is to drive into a farmer's yard with the truck. A reel of wire, which is standard equipment with each demonstrator truck, is utilized to run a line from the plant into the house or yard. The dealer ordinarily carries a lamp stand and in talking to the prospect, places the lamp on the sitting room table with the family gathered around. The dealer then proceeds to explain all about the plant.

"This explanation naturally includes a demonstration of some of the time and labor saving appliances which may be used when the plant is installed. For this purpose, he carries a flat iron and possibly a vacuum cleaner. He may have other appliances as well. A vacuum cleaner demonstration is particularly effective because it can be quickly made and it is not hard to make the women folks see the labor saving possibilities.

"The contrast between the dim, flickering kerosene lamps and the bright, cheery electric lamp on the library table is so obvious that it needs no explanation. Very often the salesman leaves the kerosene lamp burning at the same time and the entire family is conscious of the difference by direct comparison. In order to make this difference more noticeable, the salesman sometimes turns out an electric light and leaves the kerosene lamp burning for a while.

"The salesman appreciates the value of securing the co-operation of the women of the family in making a sale, and after sizing up the situation, often directs his entire efforts in convincing the wife, feeling that once this has been done, the sale will be readily consummated.

"Farmers are not generally appreciative of the time and labor saving possible with the use of a dependable economical electric unit, through which a great deal of drudgery can be eliminated from the household tasks, such, for instance, as washing, ironing, cleaning, and the care of lamps and lanterns. It is estimated, for instance, that care of lamps and lanterns requires 4.46 hours per week or 231.92 hours per year. At a very conservative figure of twenty cents per hour, the cost of keeping lamps and lanterns is $46.38 per year. In the barn and yard, the time necessary for milking, separating, churning and pumping can be greatly reduced, permitting more time for constructive thought and effort on the part of the farmer, as well as saving his strength and health."

Farm Power and Light Plants, the Opening Wedge.

Many of the plumbing and heating contractors who are selling farm power and light plants are doing so to a large extent because of the business that follows as much as for the profit to be made on the plants themselves. Although the farmer appreciates having electric light in house and barn, few of them would buy a plant for this purpose alone. To him the power and light plant means that he will also have power for pumping water, cutting feed, and doing various other tedious chores. To his wife it means better light, no cleaning and filling of lamps and lanterns, no water to carry, it also means power for operating the washing machine, for ironing, for the vacuum cleaner, and for a number of other conveniences that her city sisters enjoy. To the farmer and his wife the installation of a farm light and power plant also means that they may have running water in house and barn, and that they may have modern plumbing. They may, of course, have running water and modern plumbing without electric current, but the additions of power adds many advantages.

Water Systems on Farms Mean Fire Protection.

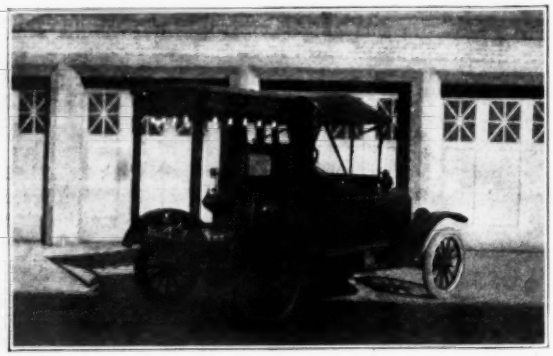
One of the arguments found most successful by plumbing and heating contractors in the sale of light and power plants

Individual Drinking Cups for Cows Means Increased Milk Production. Here the Water Supply System is an Absolute Necessity.

and water systems is that it provides effective fire protection. Farmers, as a rule, do not carry very heavy insurance, so that the loss of the barn filled with the year's crops and with stock would in many cases spell almost absolute ruin, and the loss of the home by fire would mean a most serious blow.

Modern Conveniences Keep Young People on the Farm.

Another effective argument is that it is a great help in keeping the young people on the farm. Many farmers would go to almost any length to keep their sons and



Specially Built Kohler Co. Demonstrator Truck with Automatic Power and Light Plant on the Back.

daughters from going to the city. Many a power and light plant and water supply system as well as many a job of plumbing and heating has been sold by convincing the farmer that by purchasing these things they can eliminate much of the drudgery and inconvenience that drive young people to the city where such things are considered an absolute necessity. They will thus not only keep their sons and daughters at home, but will also make life on the old farm much pleasanter for themselves. They will not care to sell out in a few years and go to the city, where their life savings, which seems like a large sum on the farm, will permit them to live in anything like comfort for only a few years.

Selling power and light units, water supply systems, accessories that go with them, and modern plumbing and heating to the farmers is not the difficult problem that it was a few years back. Many agencies have been at work to make it easier. Government and state university agricultural bulletins, farm magazines and newspapers, short and long term agricultural courses in state and private schools have done much to teach modern methods and modern equipment for the farm. Many of the young people who have attended these various schools come back and eventually convince their parents of the wisdom of installing modern equipment.

The remarkable growth and aggressive salesmanship of the automobile industry bringing with it the great road building programs of recent years, the advances shown in the building of tractors to the point where they are a practicability, and the development of a vast amount of other machinery that many a farmer considers indispensable today has paved the way for the sale and installation of power and light plants, water supply systems, and modern plumbing and heating.

Some of the first to introduce power and light units and water supply systems in the rural districts at times either willfully or through ignorance defrauded the farmer by telling him anything to make a sale. They sold him a plant in many cases entirely unsuited to his needs, and often the plant they did sell him was improperly installed and no attempt was made to give him "service" after the plant was paid for. This happily is not being done much today. It is a big business now and is being handled in a much better way.

Sell the Farmer the Type of Plant He Needs.

Many of the larger firms building up a business in this line furnish the contractor a real engineering service. The farmer's needs are carefully studied and the proper size and type of plant installed in a manner to insure satisfactory operation. Mr. McGinnis, in charge of the water supply systems department for the Bailey-Farrell Mfg. Co., of Pittsburgh, emphasizes the importance of not promising too much and of selling a plant that is not only large enough to take care of the farmer's immediate needs, but that will also allow for increased future demands. He suggests that especial care should be used in installing the first plant in a territory and that the slightest difficulty be attended to immediately. There are two reasons for this. First, it secures the good will of the purchaser and all his friends who may hear of it or see it; and second, it teaches others what to expect and how the plant should be installed and operated. An insistence on the careful following of instruction will eliminate a great deal of "service" that would otherwise have to be given. Another point that Mr. McGinnis emphasizes is the necessity for using the proper size piping, as some people have the mistaken idea that using larger size pipe will result in a bigger flow of water.

Though farmers for a time were very clannish and somewhat suspicious of any dealer from the city whom he did not know personally, this condition is rapidly changing, and today a large percentage of the farmers are as business-like in their dealings as any city business man. Advertisements in local newspapers, circular or personal letters, and the various other methods used to sell to the city customer also are effective with the farmer. Personal calls, however, are the most effective, and demonstrations such as described by Mr. Angelbeck, of Kohler Co., bring the best results.

Where Successful Demonstrations are Made.

A number of the most successful contractors in this field take their demonstrators to the various evening meetings of farmers' organizations and furnish light and running water free. Exhibits at state and county fairs, particularly the latter, result in a great many sales both directly and indirectly. At the county fairs the farmer is looking for new

Booth at Des Moines Builders' Show Maintained by the Royer Sales Company and the Plumbing and Heating Firm of Potthoff & Rosene Showing Water Supply Systems and other Plumbing and Heating Equipment.

ideas and new equipment, and is more ready to listen to a sales argument. His crops are harvested for the year and he has money to spend, or knows pretty nearly what he will have to put into improvements and additional equipment. He is in the right mood for the dealer to gain a more personal touch, which can be followed up later.

Although selling and installing water supply systems is itself is a profitable business, it is really only the entering

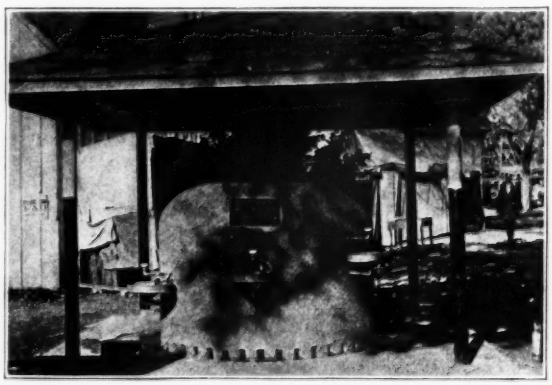
wedge for the sale of plumbing and heating, and in many cases septic tanks. In a number of states cesspools are now prohibited by law and the installation of septic tanks is compulsory.

It is sometimes argued that the farmer wants things too cheap, that he is not willing to pay a price that will permit of a fair profit. In that he is no different from the man in the city, and the contractor who gets work strictly on a price basis will find the farmer just as much a bargainer as his city customer, but when he is sold on the basis of quality of material, workmanship, and service, and an understanding of the customer's needs, the contractor will find the farmer as willing to pay a fair price as the city man. The important thing is to sell him on the right basis, and in order to do this it is necessary to study his needs carefully, to know how many gallons of water he will require daily, to know exactly what the pump will deliver, what kind of system is best suited for his particular problems. The contractor should also point out to the farmer that the saving in both his time and that of the hired help, the increased milk production, and the fact that stock can be fattened more quickly or kept in better condition when furnished a plentiful supply of pure water will pay for the installation in a short time. It is an investment as well as a comfort and a convenience, and should be sold on that basis.

The Farmer is Now Able to Pay for Modern Conveniences.

The farmer is able to buy, and if he doesn't buy power and light plants, water supply systems, modern heating equipment and other appliances that the plumbing and heating contractor has to sell, he will spend his money for pianos, phonographs, automobiles, radio sets, and a great many other things not as essential. According to the last census the average value of land and buildings per acre almost doubled between 1910 and 1920, and the average value of implements and machinery per farm was almost three times as great in 1920 as in 1910. Almost half of all the farms in the United States contain between 50 and 174 acres, and owners of farms that range in size between these two figures are the most likely buyers of the equipment the plumbing and heating contractor has to sell.

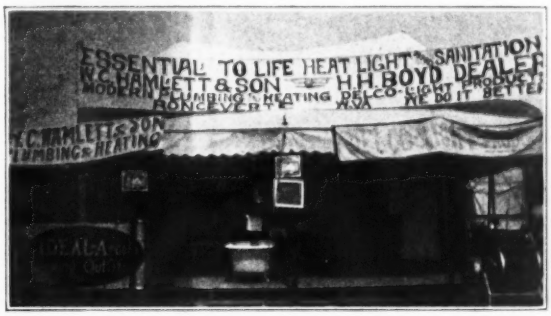
In addition to the forces already mentioned as contributing to the improvement in farm conditions, much credit must



Attractive Fountain at the Livingston County Fairgrounds in Fairbury, Ill., Donated by Mr. C. B. Day, a Plumbing and Heating Contractor of that City.

be given to the county agents, who in most states now are very important factors. But in the matter of securing fair prices for his products, co-operative associations have probably accomplished more for the farmer than any other agencies. These organizations have grown rapidly during the past few years, and at the present time a large percentage of the farmers in the middle western states market all or most of their products through them.

During the past year or two the farmers have bought little in the way of additional equipment. They suffered big losses through being obliged to sell their high cost products on a very weak market, but their costs have again been greatly reduced and the prices for their products considerably increased; so that they are again able to buy. This increased capacity and inclination to buy is general, according to Dun's



County Fair Display of Plumbing and Heating Equipment by W. C. Hamlett & Son, of Ronceverte, W. Va.

Review for the week of July 1st, which notes general greater buying of farm implements.

Many plumbing and heating contractors in the small and moderate size cities are busy right now with the work in their immediate vicinity, but wherever possible efforts should be made now to interest farmers in the surrounding territory, plans should be made for exhibits at their fairs, visits made to their meetings; and advertising programs, in which jobbers and manufacturers will be willing to help should be begun now. Plan to have the farmer spend his money for plumbing and heating rather than for things not as essential.

Execution Against One Partner.

An execution against one co-partner may be levied upon the interest of that co-partner in the co-partnership property, but not upon the co-partnership property as a whole. Under a levy upon one co-partner's interest and a sale thereof, the purchaser takes the property subject to the rights of co-partners and of creditors and subject to an accounting. In the end the judgment creditor can obtain only such share of a surplus which may remain after co-partnership debts are paid and the accounts between the co-partners have been settled. An execution against a co-partner as an individual is not the equivalent of one against the co-partnership. The return of such an execution unsatisfied is not an execution against the co-partnership returned unsatisfied, nor is it proof of the insolvency or bankruptcy of the co-partnership.—Supreme Court of New York, Appellate Division, Third Department, in Jacobs v. Maryland Casualty Co., 191 New York Supplement, 692.

Expressions of Opinion and False Representations.

Generally an expression of opinion, understood to be such, is not a false pretense. Whether or not an assertion of value is to be regarded as an expression of opinion depends on circumstances. If made with the design that it shall be accepted and acted on as a statement of existing fact, it may be so regarded. Whether or not it should be so regarded is a question for the jury.

One to whom false representations are made is under no obligation to institute an independent investigation of the truth of the representations.

In a prosecution for false pretense, absurdity of the representations charged may be relevant to the question whether the complainant relied on them and was deceived, but absurdity is no defense if, other elements of the offense being present, the complainant was deceived.—Supreme Court of Kansas, in State v. Nash, 204 Pacific Reporter, 736.

PUMPS

The Development of Apparatus of Indispensable Use to the Plumbing and Heating Contractor

By Ed. Cunningham

THE origin of pumping apparatus is lost in the remotest antiquity, and although the use of some means of transferring water from lower to higher levels is among the oldest of man's application of his reasoning power, the pump, as we know it, is essentially a modern development. In the earlier centuries water was merely lifted from lower to higher levels, and unquestionably the origin of this method was in the use of hollow shells or other similar means of raising water from lower to higher levels to freshen vegetation. The development from such crude means must have been very slow and taken countless centuries of time.

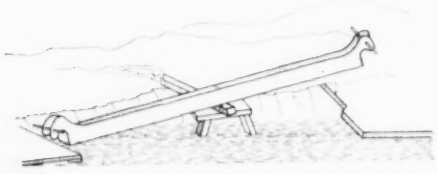


Fig. 1.

It is not likely that any invention along this line has been lost to us. Apparently all of the earlier forms of pumps were in reality water elevators. The most familiar of these elevators being the same method now used for elevating water from shallow wells, that is, a bucket suspended at the end of a rope. This must have originally been merely a hand-lifting process, being later developed into the windlass form, whereby the rope passes over a wheel or cylinder the end of which is turned by a crank.

The Chinese are given the credit for this application. A later development of this principle was the use of an endless belt, or rather ropes, to which several buckets were attached at intervals, and the rotation was continuously in one direction similar to the bucket pumps of today. Some wells operated in this manner are very ancient and some of them of very astonishing depth and size.

The most notable of such wells from which water was pumped (or lifted) is that of "Joseph's Well," which may be seen at the present day near Cairo, Egypt. When this well was built, or who were the engineers, for engineers they may be called, we do not know, but the skill displayed in its construction is admirable. It is of rectangular shape, about 20 ft. by 25 ft., and continues that size, through solid rock to the great depth of 175 ft. being enlarged at that point into a very large chamber or reservoir, the reservoir occupying one end of the chamber immediately below the above mentioned shaft; this enlarged chamber, however, is not the bottom of the well. From the opposite end of the chamber another shaft continues, a distance of an additional 130 ft. past the bottom of the bed of the rock, ending in a bed of gravel in which strata the water is found; so that the total depth to which this remarkable well extends is about 300 ft. It must be understood that the lower shaft is offset in relation to the upper, and that each shaft is provided with a double rope drive, the motive power being furnished by cogged windlasses; one located at the upper end of the lower shaft, and one at the upper end of the upper shaft, the outlet of the well. The lower shaft is 15 ft. by 10 ft. The design of the winding machinery, which lifts the bucket, is such as to permit operation by horses, oxen, or camels. The question, therefore, arises: How were these animals conducted into the intermediate reservoir chamber? Answering this question brings forth the astonishing fact that a spiral passage-way is cut, entirely independent of the well, outside of it, and winding up at such a gradual angle that horses could be ridden up or down. This spiral passage-way is about 6 ft. wide and 7½ ft. high. What the date of this construction is must be left to conjecture.

Another and perhaps earlier form of mechanical device for lifting from wells was the ordinary "Sweep," one end of which was weighted, and which was sometimes operated by the individual walking back and forth on the "sweep" in a manner similar to a see-saw.

Another method also resembling a see-saw is the rather ingenious contrivance shown in Fig. 1, whereby water was discharged from a center opening in a boat-like structure, the opposite ends of which were alternately raised and lowered. This was called a double gutter, and an advance on this construction, and incidentally the first known use of the check valve principle came about when openings covered by flaps were placed at each end to admit the water without completely submerging the ends. This device originated in prehistoric times, in India.

The next forward step in elevating water mechanically came about with the use of the wheel, the principal operation

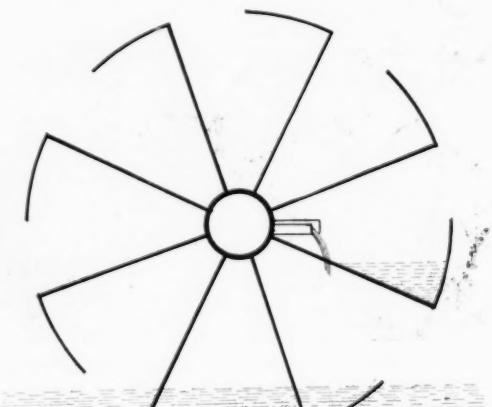


Fig. 2.

of which is shown in Fig. 2. This wheel was suspended on a central axis and was turned by a crank, lifting the water successively by each of the scoops and delivering it toward the center, where it was discharged through a trough. This is a Roman invention of comparatively recent time. An improvement on this is shown in Fig. 3, a device which was the

invention of DeLaFaye, and, as can be seen by the illustration, was so arranged that the moving current of a river turned the wheel by means of the extended paddles and gradually delivered the water to the center of the wheel where it was discharged.

The foregoing apparatuses, all of a more or less crude nature, persists into our own times, and are essentially water elevators and not pumps at all.

The pump as we know it today is a development of the syringe. This is a complete pump in itself. Since the collapsing enables a mechanical inflow of liquid and, after it is filled a compression discharges the liquid. This is the method of operation of all our modern pumping devices, excepting the rotary and the centrifugal.

It is a very curious fact that the cause of water entering a tube, from which the atmosphere had been removed, was not understood at all until very recent years. The principle had of course been used from the very earliest times without question. The very first inhabitant of the earth drew liquid into their mouths by means of straws, reeds, or other hollow

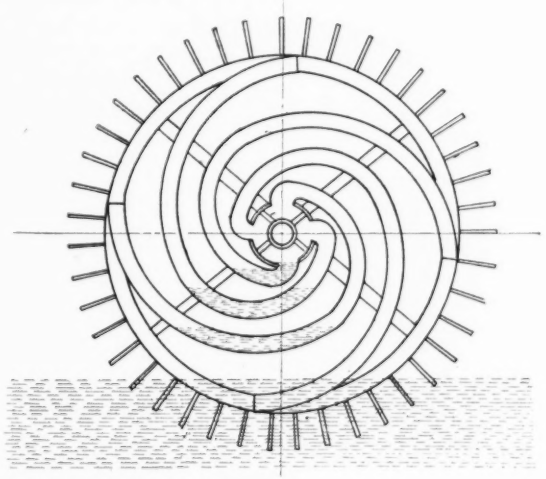


Fig. 3.

tubes. It was thought, however, that this phenomena was due to some power resident in the mouth itself. It is quite astonishing how even in our own day there are so many who do not understand that this operation is due to atmospheric pressure, and not to any suction principle at all, so while the human pumping process was utilized for many centuries it was not realized that the same effect could be produced mechanically until that period, how long ago we do not know, when some primitive mechanic invented the syringe, which is an application for injecting and ejecting water in the same manner that air is pulled into and ejected from the air bellows.

The term suction still is used, although as a matter of fact there is no such thing in nature as a suction. This was first demonstrated by Torricelli in 1643. Torricelli was a pupil of Galileo, and his demonstration not only proved the theory of atmospheric pressure being the cause of liquids being drawn into tubes, but also gives us an exact measure of the weight of the atmosphere; in other words, Torricelli at that time invented the barometer. Torricelli's demonstration consisted in the use of a glass tube, one end of which was completely sealed, the other end being open; this was filled completely with mercury, and then closed by the thumb; it was then inverted, the open end placed in a vessel containing mercury, and the thumb removed. The mercury slowly dropped in the tube coming to rest about 30 inches above the mercury in the vessel. That portion of the tube above the mercury is as complete a vacuum as can be secured; the distance in height of 30 inches is due to the weight of the atmosphere at sea level which sustains a column of mercury approximately 30 inches in height and represents a pressure due to the weight of the atmosphere of approximately 15 pounds per square inch. The actual figures are 29.92 inches, as the height of the mercury, and 14.7 pounds per square inch at sea level, as the pressure of the air.

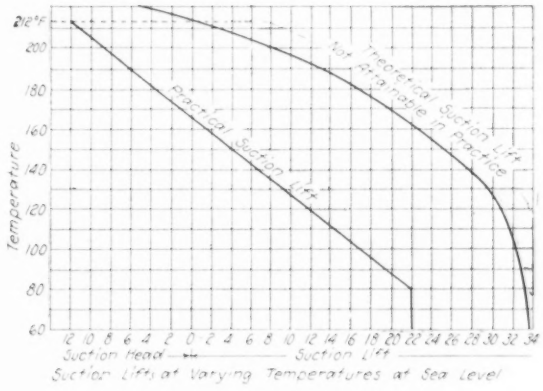


Fig. 4.

The weight of mercury being 13.6 times that of water, a column of water will be so sustained to a height of 33 ft. 9 inches at sea level. This is the theoretical height to which water may be lifted, by what is called the "suction stroke" of a reciprocating pump, or positive acting rotary pump. Due, however, to friction, leakages at fittings, air entrained in the water, etc., the practical height to which water may be lifted is limited to about 22 ft. This is further modified by the temperature of the water and also by the height above sea level; if the water is very hot it will not be lifted at all but on the other hand a height (or "head") must exist on the suction side of the pump. This is shown by Fig. 4 which gives the theoretical height to which water may be lifted at various water temperatures, and the actual practical height.

Since Torricelli, the cause of the movement of liquid upward in a tube has of course been well understood, and it remained merely to make mechanical applications, which would make use of the lifting power, or rather the pushing power, of the atmosphere when the internal atmospheric pressure was removed from the upper part of the tube; it, therefore, resolved itself into a matter of skill in the design; the application of

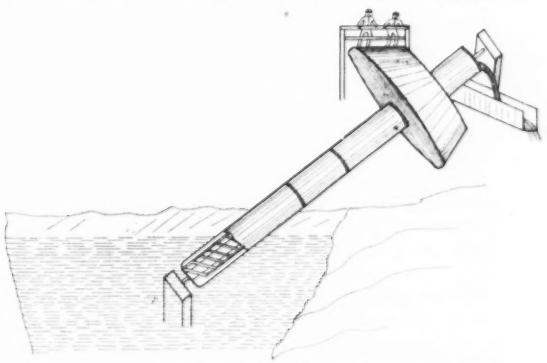


Fig. 5.—The Screw of Archimedes.

correct principles, the use of suitable materials, and the perfection of tools and methods of machining. Great strides have been made in machine design for boring cylinders, and turning pistons. It is interesting to note in this connection that James Watt, the immortal inventor, who first applied the powers of steam in pumping, had to work with cylinders of large diameters, and great length of stroke, with a difference in diameter between the opposite ends of the best cylinders

he produced, of about one-half an inch. To us who now have mechanical perfection of cylinder construction as close as 1/1000 of an inch in cylinders of even large diameters and as close as 1/10000 of an inch in small diameters, and who have methods of packing and materials of very high grade, it is a matter of great wonder that Watt was able to secure the results he did, with the very crude methods and materials at hand for keeping the pistons tight.

No treatise on pumping would be complete without mention of that old Greek Master-Mechanic Archimedes, to

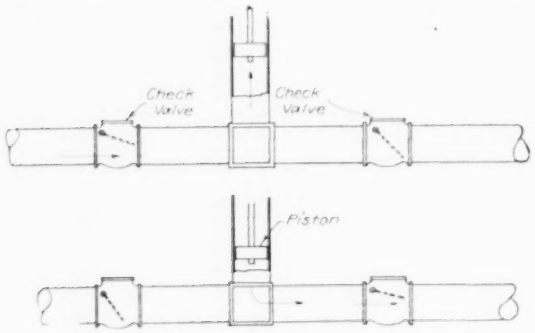


Fig. 6.

whom is given the credit of first using mechanical means which was an advance on the method of merely lifting water by means of buckets or scoops. Archimedes first applied the use of a tube in lifting water and he did this by means of what has become known as the Archimedian screw which is illustrated in Fig. 5.

The principal forms of water elevators are as follows: Bucket-wheel, Archimedian screw, hydraulic belt, hydraulic ram, scoop, scoop-wheel, turbine, tympanum, water-screw.

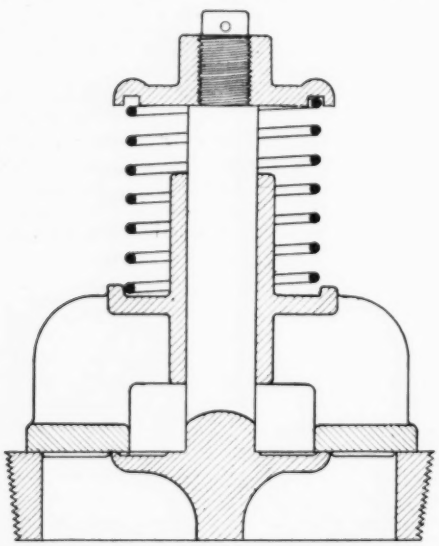


Fig. 7.

The hydraulic belt listed above refers to a method of passing an endless belt over a cylinder at the surface and extending the lower end of this endless belt into the water; by turning the cylinder water was entrained in the meshes of the belt, carried upward, and when reaching the rapidly revolving cylinder the water was squeezed out by reason of its weight resting on the cylinder, and due to the centrifugal force, at the point where the belt passed over the cylinder the water was thrown outward into a trough. This belt was made of rope, woolen material, etc.

The hydraulic ram was rather an early application, and makes use of the momentum of a moving body of water, which strikes and moves a piston in front of which is a smaller amount of water; some of the water which has been used to move the piston forward is wasted, and some of it moves into position in front of a similar piston, so that the power resident in water, which has a static head, is used to force some of the same water to a still higher elevation.

Other forms of pumps which make use of means other than merely lifting are as follows:

Bellows-pump, centrifugal, piston, plunger, rope, rotary, steam-jet pump, steam-vacuum pump, syringe, vacuum and water-ram.

Pumps may therefore be divided into two classes:

1. Lift Pumps.
2. Force Pumps.

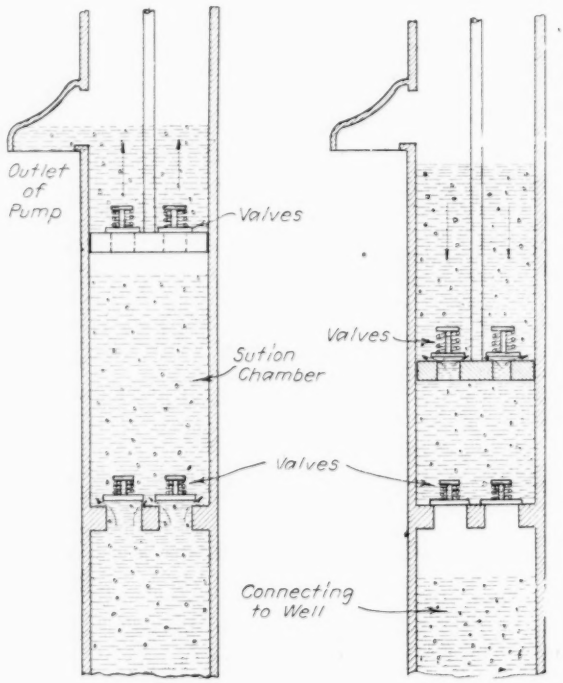


Fig. 8.

These may be combined so as to be both lift and force pumps, and any of these two kinds, or the combination of the two, may be reciprocating pumps or rotary pumps. These may be further sub-divided and classed as "single-acting" pumps, in which one direction of the stroke takes the water in, and the opposite movement pushes it out; and the "double-acting" pump, in which, while the piston is traveling in either direction, water is being forced out from one side of the piston while at the same time being pulled into the cylinder on the opposite side of the piston, reversing the movement when the piston changes its direction. They may still further be grouped into:

1. Vertical Pumps.
2. Horizontal Pumps.

The simplest form in which a single-acting, reciprocating pump may be devised is shown in Fig. 6, in which, for purposes of illustration, the water is shown moving through a horizontal pipe, in which are located two check valves, and in a vertical extension from the horizontal pipe, a cylinder is extended in which a piston moves up and down. The upper part of the illustration shows the upward moving piston with the water entering the piston chamber through the open check valve at the left. The check valve at the

right being held in a closed position. The lower part of the figure shows the piston moving downward, closing the check valve at the left on the suction side, and forcing the water through the delivery side at the right, the pressure of the water opening the check valve. All forms of reciprocating pumps make use of some form of check valve; sometimes it is merely a flat piece of leather made in form of a flap, or it may be made in a mushroom form, similar to that shown in Fig. 7, in which the closing movement of the valve is made more certain by the use of a spring. Valves such as this are made in a multiplicity of forms, but their principle of operation is similar.

The application of the check valve principle to an ordinary hand-operated well pump is shown at Fig. 8. To more clearly illustrate the use of the check valve form shown in Fig. 7 in mechanically operated pumps, this type of pump valve is shown in the illustration in Fig. 8, although as a matter of fact this type of valve is rarely used in ordinary hand pumps; the disc type of leather flap being as a rule more suited for this service. The pump in Fig. 8 is a cross section of a vertical combined suction and lift pump. On the left side of the figure the piston is shown traveling upward, with the check valves on the piston closed, thus permitting it to lift water and discharge it at the outlet near the top; in the lower part of the pump a suction and reservoir chamber is located, in which are placed check valves of similar type. The upward stroke of the piston removes the air from the suction chamber causing the atmosphere to force the water past the lower check valves, this operation continuing throughout the upward stroke; the downward stroke is indicated at the right of the figure; as the piston plunges downward, the combined downward pressure of the water and the spring on the check valves closes the ports of the valves located at the bottom of the suction chamber, and the resistance of the water contained in the suction chamber causes the valve on the piston to open, thus delivering the water to the upward side of the piston.

The application of this principle to an ordinary double acting steam pump is shown in Fig. 9. In this pump the same principle of operation is used as indicated in Fig. 8 with the exception that the valves are located in a separate suction and discharge chamber, there being no valve on the piston itself, and the construction is the usual double-acting type. Water enters at the suction chamber located below

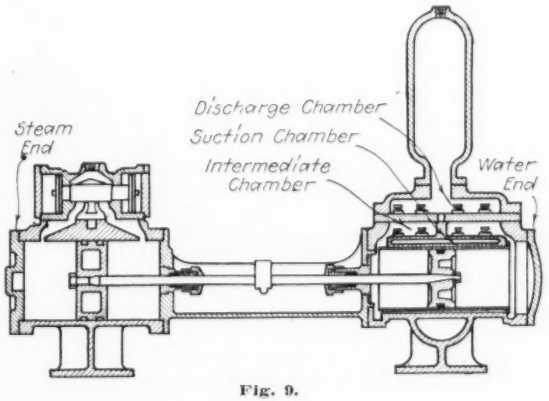


Fig. 9.

the lower valves, and is taken into an intermediate chamber, and finally discharged out through the upper valves into the discharge chamber to the delivery lines. The intermediate chamber is divided by a baffle.

The operation of the pump is as follows: Should, for instance, the piston be traveling to the left, water will be forced into the intermediate left hand chamber, closing the suction valves in that chamber, and opening the two discharge valves on the left hand side of the discharge chamber; the same movement of the piston is filling the right hand side of the cylinder by opening the suction valves into the intermediate chamber on the right hand side; the upper discharge valve on the right hand side being held in a closed position both by the pull exerted on the intermediate chamber and the spring of the discharge valves. The illustration, therefore, shows a double-acting pump; now in boiler feed-pumps, fire-pumps, tank-pumps, etc., these are usually constructed with a double set of pistons so that when one piston is traveling in one direction, the twin piston is traveling in

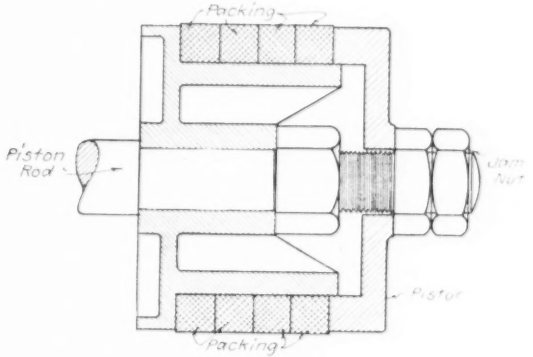


Fig. 10.

the opposite direction. These pumps are therefore called double-acting duplex pumps. If there is just a single set of pistons, then it is a double-acting single pump. Double-acting single pumps are much used in service which requires a low head, and for vacuum work, etc.

The detail of construction of a water piston is shown in Fig. 10, which indicates the end of the piston rod with the nuts and jam nuts for holding in position and the shoulder and collar for holding the packing in position. The packing is made in a very great variety of forms and materials suitable to the liquid being pumped and the temperature at which it is held. A packing, for instance, that would be very suitable for cold water is not at all suited to hot water, and packings of either kind which are manufactured for water service would be entirely unsuited to liquids containing acids, alkalies, etc.

(To be Continued.)

Sales by Particular Description or Designation.

While there is some conflict among the authorities on the question, the Supreme Court of Appeals of West Virginia holds, in Appalachian Power Co. v. Tate, 111 Southeastern Reporter, 150, the better reason, supported by the weight of authority, seems to be that a verbal express warranty cannot be added to a written contract of sale; and that where a machine or appliance is sold by a particular description or designation by a contract in writing, the buyer may not prove an express verbal warranty of fitness of such machine or appliance for a particular purpose.

Ordinarily there is no implied warranty that a machine or appliance sold by a particular description is fit for any particular purpose, even though the seller knows at the time of the sale that the buyer intends it for such specific purpose.

Where a sale of a machine or appliance is made by a particular description or designation, there is an implied warranty that it will be a merchantable article of the kind sold.

One who buys a machine or appliance by a particular description or designation is justified in rejecting the article tendered in satisfaction of the contract of sale, where it appears that it will not perform the service usually performed by the average or ordinary machine or appliance described in the contract of sale.

AIR CONDITIONING

The Evolution of the Science of Air Conditioning and Ventilation—How It was Brought About by Study, Experimentation and Research

By James Mackay

(Continued from Page 9 in the July 1st Issue.)

"Air Motion:—For determining the rate of motion of the air, the static pressure may be taken with a differential draft gauge which will give the static pressure in inches of water, which may be translated to velocity per minute by referring to conversion table. Or the velocity may be read directly by an anemometer (Fig. 14), which is a small wheel mounted on extremely delicate bearings, and having vanes extending radially. When placed in a moving current of air, the velocity is read directly on the dials on the face of the instrument."

"Air Control and the Reduction of the Death Rate After Operation."

Under the above caption, in the October, 1919, number of "Modern Medicine," Ellsworth Huntington, Ph. D., Research Associate in Geography, Yale University, New Haven, Conn., presents some remarkable conclusions, which are the result of the truly stupendous task of analyzing the deaths of 60,000,000 people in eighty cities. Prof. Huntington's labors were performed in a study of climate, and the analysis of the deaths was to find some definite relation to temperature of the atmosphere, humidity, and to rapid changes in the weather.

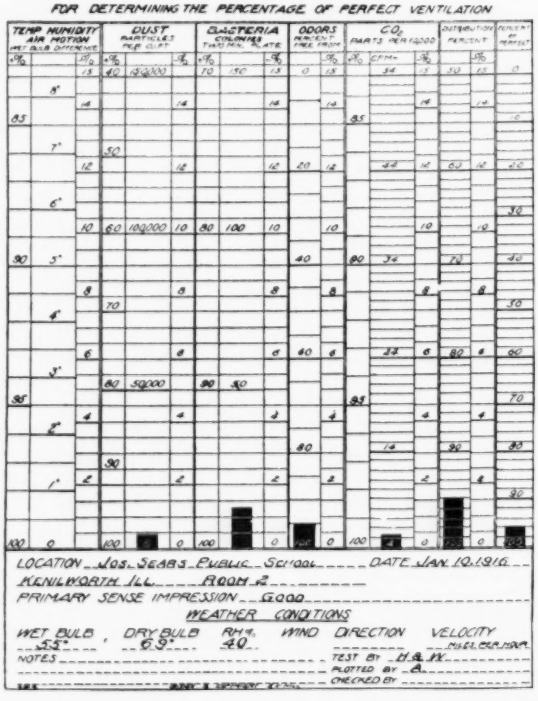


Fig. 13.—From a Test in a School Room in Kenilworth, Ill.

In the article it is stated that "all kinds of ailments show a surprisingly close correlation with temperature, humidity, and variability.

"Different types of disease, however, respond differently. For surgical operations the best condition, as indicated by the records of two large Boston Hospitals, is high humidity, 80 per cent or more, directly after operations, and moderate humidity, about 60 per cent at a temperature of 64 degrees a few days later."

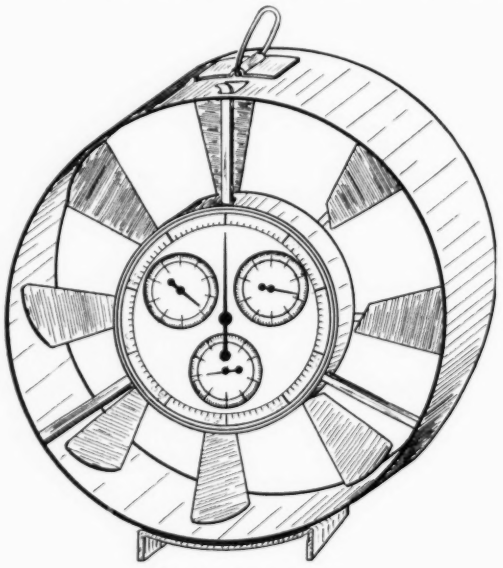


Fig. 14.—Anemometer.

"The study of these millions of deaths teaches three main lessons. First, the health of most parts of the world is best when the average temperature for day and night together approaches to 64 degrees F., which is the optimum for the white race.

"Second, and more important because less expected, at all temperatures up to the optimum dry air does far more damage than moist; while, even at higher temperatures, extreme dryness is worse than a moderate degree, although not so bad as extreme moisture. At a mean outdoor temperature of 64 degrees the optimum relative humidity is about 80 per cent, which means dew at night and a humidity of perhaps 60 per cent at midday in clear weather. Equally unexpected, and equally opposed to the common belief, is the third lesson, that variability in the air is just as important as in diet or occupation. A climate or room in which the atmospheric conditions vary frequently but not unduly on either side of the optimum is decidedly more healthful than one that remains uniformly near the optimum. * * * * different diseases react differently * * * * epidemics, taken

as a whole, are checked by dry heat * * *. Greenberg has found that mortality from pneumonia diminishes when either the temperature or humidity increases, although his figures are not conclusive for high temperatures * * * *

"In order to remove all doubt in this important matter, I have begun an investigation of different ailments and different types of people with a view to determining the best conditions in each case. * * * * * The problem is to determine whether the condition of the air at the time of operations and immediately thereafter has anything to do with the success of the operations. The answer is emphatically positive. Deaths after operations show not only the familiar seasonal variation, due largely to temperature, but also an equally strong relationship to humidity and variability. The present article considers humidity, while variability will be considered later.

"The method of investigation employed was briefly as follows: At the Boston City Hospital (1914-1918) and the Massachusetts General Hospital in the same city (1906-1915), tables were prepared showing the dates of all non-traumatic operations which were followed by death before discharge from the hospital. These were divided into groups as appears below. Operations not followed by death were all put in a single group * * * * used only as a standard to measure the departure of the other groups. The cases followed by death were then compared with the conditions of the outside air as recorded by the Weather Bureau. Comparison was first made with the conditions on the morning of the operation, and a distinct relation became clear. When the weather on the succeeding morning was used, however, the relationship became much clearer. This is natural, for the critical time is immediately after the operation. Accordingly, unless otherwise noted, all statements as to the weather refer to 8 a. m. of the morning after the operation.

"Among the questions to be answered immediately were: (1) Does any particular kind of weather hasten death after operations? (2) How long does the weather of a single day continue its influence? Table I gives the answers. It shows how the weather at 8 a. m. on the morning after operations which resulted in death at the Boston City Hospital differed from the weather on similar morning after operations which did not result in death.

"We are now ready to find out just what effect on the death rate is produced by any given combination of temperature and humidity. * * * * * * "Table II shows the number of deaths per day following operations performed when the weather conditions next morning were as indicated at the top and left. The lessons of the table as to temperature are summed up in the 'Total' column on the right. The small number of deaths, 0.383 per day, at a temperature of 51 to 60 degrees shows that the relation of operations to temperature is essentially the same as that of health in general; for 51 to 60 degrees at 8 a. m. includes to an average of about 64 degrees for night and day together. The low figure for very hot weather, 0.324, merely means that under such conditions surgeons do not operate if they can avoid it.

"Although temperature is presumably the most important climatic element, its effects are profoundly modified by humidity, as appears in the body of Table II. The figures for temperatures 'over 80 degrees' and '71-80 degrees' are large on the left where low humidity is shown, fall to a minimum at about 60 degrees, and rise again on the right where the humidity is high. At temperature below 70 degrees, Table II, discloses a favorable tendency at low humidities, but this appears not to be due to humidity, but to the fact that cold waves, which are usually stimulating when they first occur, are regularly accompanied by dry weather. Despite a few pronounced cold waves however, dry weather at temperatures below 70 degrees, or more probably below 64 degrees, is as a rule harmful. This is clearly apparent in Table III, which is a condensed summary of Table II. At temperatures below 70 degrees the decrease from left to right, that is from low humidity to high, is almost perfectly regular.

"The last two columns are especially interesting. Column D shows the deaths per day under the most favorable circumstances. Except above 70 degrees, where the figures for a humidity of 51-60 per cent (0.237) have been added in parenthesis, the most favorable conditions are clearly those most moist. The next column E, shows the percentage by which column D, using 0.237 instead of 0.775, is less than the corresponding average for all days of a given temperature, as given in the right-hand column of Table II, or else by calculation from that table. In other words, the percentages in column E indicate the amount by which the death rate *would have been reduced* if the air at all times had been as good as under the most favorable conditions.

"It is noteworthy that favorable conditions of humidity at temperatures above 70 degrees are even more important than at lower temperatures * * * * humidity is by far the most important element. If the outdoor air had contained its optimum complement of moisture, and if the indoor air had therefore been correspondingly modified, the deaths would have apparently been diminished by 16.8 per cent. Artificial humidification would apparently produce equally desirable results.

"* * * * * * the deaths occurring from 1 to 10 days after operations at the Boston City Hospital are summarized in Table IV, which combines certain features of Tables II and III. The percentages in column F rise higher than in the corresponding part in Table III, Column E, and their

Table I.

AVERAGE WEATHER CONDITIONS AT 8 A. M. ON DAYS AFTER OPERATIONS FOLLOWED BY DEATH, AT BOSTON CITY HOSPITAL, JANUARY, 1914-SEPTEMBER, 1918

KEY
A = *Number of cases.*
B = *Departure from average temperature at 8 A. M. on days after operation, none of which resulted fatally.*
C = *Departure from average relative humidity ditto.*
D = *Departure from grains of water per cubic foot ditto.*

	Length of interval from operation to death.															
	0-1 days—Section I				2-4 days—Section II				5-10 days—Section III				Over 10 days—Section IV			
	A	B	C	D	A	B	C	D	A	B	C	D	A	B	C	D
Jan. to Mar.	71	+0.62	−6.1	−.095	67	−1.55	−1.3	−.098	74	−0.31	−4.4	−.067	52	+2.36	+0.8	+.241
Apr. to June	73	+2.49	+4.4	+.341	66	+0.92	+0.2	+.250	48	−0.24	−0.9	−.116	46	+0.85	−1.7	+.065
July to Sept.	59	+0.04	−0.5	−.002	47	−2.52	+2.2	−.067	34	−0.57	−2.1	−.236	35	−0.82	−0.7	−.201
Oct. to Dec.	32	+1.81	−3.2	+.033	40	−0.14	−3.9	−.248	30	−1.26	−3.9	−.214	30	−0.26	−1.9	−.073
Year	235	+1.24	−1.35	+.089	220	−0.82	−0.65	−.041	186	−0.60	−2.80	−.158	163	+0.53	−0.88	+.008
	(9 plus, 6 minus)				(4 plus, 11 minus)				(0 plus, 15 minus)				(7 plus, 8 minus)			

NOTE.—The averages in Table I give equal weight to each month. This is accomplished by reducing the figures in column A (for each month) to percentages of the total number of cases for the month. Thus March, with 105 deaths, has the same weight as November with 36, and the influence of the seasons is thereby eliminated.

average 23.2 per cent rather than the former figure 16.8 per cent, seems to be a fair measure of the influence of humidity immediately after operations.

"A second reason why our results appear less striking than they really are, is that, even when the air outdoors is saturated, the humidity within doors may be still much too low. If saturated air from outside is taken into the house and heated to 64 degrees, its relative humidity becomes approximately as in Table V.

"Only the last of the percentages in Table II is as high as is desirable after operations, hence even in the best winter weather artificial humidification is needed on a considerable scale. Conversely in warm weather the air should be dried and cooled before being admitted to operating rooms and wards. There is as much reason to cool the summer air as to warm that of winter. With such treatment of the air we may reasonably hope that the death rate may be reduced not only to the level which now pertains to air with the best natural conditions of humidity, that is, by 20 per cent or more, but to a still lower level. * * * * * * * * the most favorable conditions appear to shift gradually with temperature so that at all times they correspond as nearly as possible to air indoor humidity of not far from 60 per cent after the air has been heated and has received the usual increments of moisture from furnaces, from people's breath and from other sources of evaporation. This suggests that, whereas

Table II.

DEATHS PER DAY AFTER OPERATIONS WHICH WERE FOLLOWED BY SPECIFIC CONDITIONS OF WEATHER. BOSTON CITY HOSPITAL, JANUARY, 1914-SEPTEMBER, 1918, AND MASSACHUSETTS GENERAL HOSPITAL, 1906-1915

Temperature 8 A. M. day after operation	Relative Humidity at 8 A. M. on day after operation							
	40% or less	41–50%	51–60%	61–70%	71–80%	81–90%	91–100%	Total
Over 80°	(0-0)	1.000 (2-2)	0.182 (2-11)	0.083 (1-12)	0.750 (6-8)	0.000 (0-1)	(0-0)	0.324 (11-34)
71°-80°	0.937 (15-16)	0.489 (22-45)	0.244 (21-86)	0.280 (34-121)	0.347 (42-121)	0.500 (49-98)	0.775 (24-31)	0.399 (207-518)
61°-70°	0.333 (3-9)	0.329 (28-85)	0.470 (69-147)	0.417 (88-211)	0.365 (78-214)	0.410 (93-227)	0.346 (64-185)	0.393 (423-1087)
51°-60°	0.375 (6-16)	0.466 (28-60)	0.470 (47-100)	0.433 (77-178)	0.361 (70-194)	0.405 (74-183)	0.271 (55-203)	0.383 (357-934)
41°-50°	0.091 (1-11)	0.279 (12-43)	0.629 (71-113)	0.493 (80-162)	0.398 (84-211)	0.477 (75-157)	0.415 (73-176)	0.453 (396-873)
31°-40°	0.800 (12-15)	0.368 (18-49)	0.556 (83-149)	0.431 (102-237)	0.416 (79-190)	0.417 (56-134)	0.401 (85-212)	0.422 (435-986)
21°-30°	0.250 (3-13)	0.462 (30-65)	0.524 (54-103)	0.401 (55-137)	0.445 (50-112)	0.535 (38-71)	0.450 (22-49)	0.460 (252-549)
11°-20°	0.562 (9-16)	0.685 (26-38)	0.421 (32-76)	0.416 (32-77)	0.485 (17-35)	0.368 (7-19)	0.250 (4-16)	0.458 (127-277)
10° or less	0.545 (6-11)	0.133 (2-15)	0.447 (17-38)	0.740 (20-27)	0.650 (13-20)	0.400 (2-5)	0.000 (0-0)	0.500 (58-116)

NOTE.—To use the table, find the required temperature on the left and the relative humidity at the top. The decimal number at the point where the lines of temperature and humidity cross shows the number of deaths per day on days of that kind, each hospital being reckoned as a separate unit and the two being simply added. The left hand number in parenthesis indicates the number of deaths on days having the given combination of temperature and humidity, while the right hand number shows the total number of such days.

Table III.

SUMMARY OF DEATHS PER DAY IN RELATION TO WEATHER

Temperature at 8 A. M. day after operation	Humidity at 8 A. M. on day after operation				Advantage of Column D over average for given temperature
	Under 6%	71–80%	81–90%	91–100%	
	A	B	C	D	E
Over 70	0.413	0.316	0.561	0.775 (0.237)	(40.0%)
61-70	0.415	0.391	0.381	0.346	12.0%
51-60	0.460	0.395	0.334	0.271	29.2%
41-50	0.503	0.440	0.444	0.415	8.4%
31-40	0.531	0.424	0.407	0.401	9.3%
30 or less	0.491	0.458	0.456	0.400	13.6%
Weighted average					16.8%

Table V.

RELATIVE HUMIDITY OF SATURATED OUTDOOR AIR AFTER BEING TAKEN INTO HOUSE AND HEATED TO 64°

Outside Temperature	Approximate relative humdity indoors at 64°
25°	24%
35°	36%
45°	52%
55°	75%

Table IV.

SUMMARY OF DEATHS PER DAY AT BOSTON CITY HOSPITAL COMPARED WITH WEATHER AT 8 A. M. ON DAY AFTER OPERATIONS, AND CONSIDERING ONLY THE DEATHS OCCURRING ONE TO TEN DAYS AFTER THE OPERATION

Temperature	Relative Humidity				Total	Advantage of D over E
	60% or less	61–80%	81–100%	91–100%		
	A	B	C	D	E	F
Over 70°	0.230 (8-35)	0.213 (19-89)	0.383 (18-47)	0.200 (7-35)	0.263 (45-171)	31.5%
61°-70°	0.320 (24-75)	0.292 (36-128)	0.264 (37-140)	0.254 (16-63)	0.283 (97-343)	10.2%
51°-61°	0.268 (15-56)	0.309 (30-123)	0.215 (24-112)	0.117 (7-60)	0.264 (77-291)	56.6%
41°-50°	0.477 (24-50)	0.270 (33-122)	0.352 (34-99)	0.347 (17-49)	0.336 (91-271)	—3.3%
31°-40°	0.463 (24-53)	0.355 (44-124)	0.317 (39-123)	0.312 (24-77)	0.357 (107-300)	12.0%
30° or less	0.387 (48-124)	0.316 (47-149)	0.327 (20-61)	0.228 (5-22)	0.355 (115-324)	35.8%
Weighted average						23.2%

immediately after an operation the relative humidity should be as high as practicable, that is 80 per cent or more, it should gradually be diminished so that after a few days it averages about 60 degrees when the temperature is 64 degrees. Even that, however, is about twice as great as the humidity of the ordinary house or hospital in winter.

* * *

"Whatever method of humidification is used, it must be remembered that if the air is to be comfortable and healthful, it must be comparatively cool. Air with a temperature of 65 degrees and a relative humidity of 70 per cent, feels perfectly comfortable to people who want a temperature of at least 70 degrees when the air is dry in winter. It must also be remembered that variability, as well as humidity, is needed."

(To be Continued.)

UNSEEN ENEMIES

By L. G. H.

The needless friction in your organization between individuals, which can and should be treated with a firm hand and eliminated.

The mechanical details which drag and grind because no one has made it his business to correct existing conditions which are not as they should be.

The disposition on the part of some people to make continual excuses under the mistaken impression that they are offering bona fide reasons for delay and non-performance.

The idea—the queer and mistaken idea, that you are buying or selling time, when you are doing nothing of the kind. The commodity sold or purchased is "service," and it's up to you to see that service is delivered.

The people who peddle gloom and earnestly urge you to prepare for the worst. We usually get what we are looking for.

The executive who thinks he can't make a mistake, and is too pig-headed to acknowledge it when he does.

Habits both personal and business, which injure reputation and weaken character.

The idea that a small loss or waste doesn't count. When continued over a period of time, such carelessness is bound to become a serious matter.

The fool idea that what "I" do must be recognized and heralded and made a fuss about—or it doesn't count.

The lack of a clear-cut idea of just what to do next; how to do it; and the importance of doing it promptly and well.

The individual who like the mule, is always kicking about something, forgetful of the fact that it doesn't take any brains to kick.

The individual who is long on telling what the other fellow ought to do, and short on common-sense application himself.

The slacker who ignores Safety First for himself and others. No one may know of the simple precautionary act, and yet it may save suffering or life.

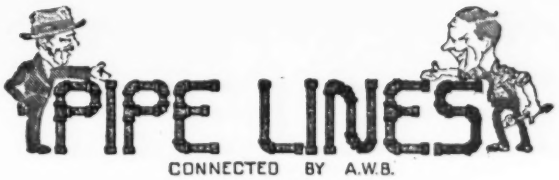
The worker who is careless of material because he doesn't have to pay for it.

The human bat who is careful not to do more than he is paid for, forgetting that as soon as he is bigger than his job, that he will find a bigger one to fill.

The short-sighted person who continually sees what is behind, but has neither vision nor courage for what is ahead.

The fellow who is such a poor sport that he loses with a frown instead of a smile. A good loser is a winner in the end. A poor loser is a poor bet all the way through.

It is regrettable to harbor an enemy. It is disastrous to be an enemy when we ought to be a friend and co-operator. It is tragic to assume the role of being our own worst enemy!



HE CAME BACK.

When William Harper reached the age of twenty-two or so
He up and told the boss, he did, "I've quit I'd have you know!
I know the business all the way from sillcocks through to tubs;
I know the tools, I know the rules, and all about you dubs!"

He quit. He bought a little kit. He bought a little shop.
He bought a bright new sign and said, "Now watch the people stop."
They didn't stop. They went right on. They never seemed to care.
Now Poor William's back with the boss a little worse for wear.

S. V. C., Baltimore.

A WASTE OF TIME.

Mother: Willie, you are a very dirty boy. You need a bath. And, I declare to goodness, your ears are so dirty I could plant potatoes in them.

Willie: Well, don't do it, mother. It would be no use. The bugs would be sure to get 'em. M. M., Cherokee, Iowa.

HE WAS SO IGNORANT.

He thought Poison Ivy was the name of a wild woman.

B. B., Indianapolis.

A NEW GAME.

This early morning game threatens to become a rival of golf. It is well suited to week-end and house parties. It demands quick thinking, rapid movement and the ability to sprint. Therefore, those who enter the game should be about equal in size and age. At a given signal—the ringing of a bell, or something like that—each contestant shall open his bedroom door and make a dash down the hall for the bathroom. The one who gets into the bathroom and succeeds in closing and locking the door, without being rushed off his feet, wins. If a contestant drops a sponge or towel on his way to the bathroom he is declared out of the game for that day. RUSH, Petoskey, Mich.

In some communities the movies have become so popular that bath night has been changed from Saturday to Friday.

ED HOWE, Atchison, Kansas.

TAINTED MONEY.

A foreigner who pronounces "thirty" distinctly "dirty," came in the other day to pay a plumbing bill of thirty-seven dollars. He counted the money out one dollar at a time, finally saying, "dirty five, dirty six, dirty seven." And they were, believe me, dirty, filthy dollars. S. E. G., Freedom, Pa.

HE GOT THE MONEY.

A young man wanted a job as collector. To get rid of him, more than anything else, the dealer gave the young man an old account against a skinflint who had a reputation for owing everybody and paying nobody. "If you collect this," said the dealer to the young man, "I will give you a regular job."

In less than an hour the young man returned and laid the money on the dealer's desk. "How in the world did you do it?" gasped the astonished dealer.

"I told him," said the young man, "that if he didn't pay me I would tell all his other creditors that he had paid me, and to save himself from a stampede he came across."

W. B. D., Albany, N. Y.

"De part of de Bible dat Ah likes de best," said Uncle Mose, as he smacked his lips, "is dat part what tells about de twelve opossums." McC, Augusta, Ga.

WOULD HE THINK EXTRACT OF CORN WAS PORK?

"That waiter is either a fool or a humorist," remarked Diner. "I ordered extract of beef, and he brought me milk."

FELIX, New York.

Even the best man at a wedding has to take second place. But the best men who send their jokes to Pipe Lines always get first place. A. W. B.

QUESTIONS & ANSWERS

This department is a clearing house for ideas and is open to every reader of "Domestic Engineering." Problems sent in are replied to at the earliest possible moment by "Domestic Engineering," and this department can be made more valuable if readers themselves will help the man who needs assistance. Read the questions and answers. If you have had similar problems, or know from experience how the faults can be remedied, do not hesitate to send in your comment or criticism. It will be some satisfaction to you to know that you have helped a fellow craftsman and a pleasure for us to pass on the data. "Every man owes some of his time to the upbuilding of the profession to which he belongs."

IMPROVED RANGE BOILER AND FURNACE COIL CONNECTIONS.

Editor, "Domestic Engineering":—Referring to the question from G. W. B., Tenn., on Page 273 in the February 11th issue of "Domestic Engineering," we wish to say that gas heaters do not have bottom openings. Check valves, you will find, are very bad on range boilers. The layout, Fig. 1, will

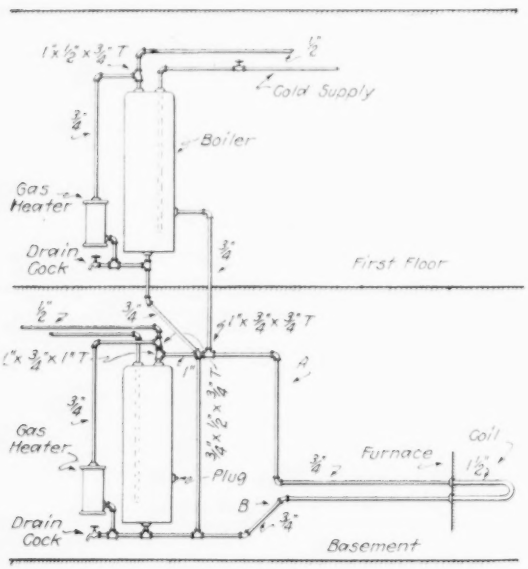


Fig. 1.

give good service. It would be more satisfactory to have one boiler "larger"—and use only one. Your magazine gives us lots of help. We wish it continued success.

Nebraska. D. & S.

This correspondent's kind letter is short and sweet. But it contains a lot of condensed information, for which we thank him, and which, we are sure, will be helpful to the trade.

We are inclined to think, however, that flow pipe A should be 1-inch instead of ¾-inch; also that pipe B should be 1-inch. Then the furnace coil will be sure to deliver to both boilers, and to receive its return supply from both boilers.

Then again, is it not a fact that the lower gas heater will heat the water in the upper boiler, and so the lower floor tenant pays for gas to heat water for the upper floor tenant? We think he will, if there is not a valve in the circuit to the upper floor, which may be closed during summer. We would like to hear what the trade thinks of that point.

CAUSE OF CLOSET TANK SWEATING.

Editor, "Domestic Engineering":—Will you please tell us in your Questions and Answers Department what causes a vitreous closet to sweat? There is no leak through the flush valve, when the tank is full, but it sweats continually.

I was called in to examine this tank to discover the leak, but the reason for the water dripping to the floor is that the tank sweats.

The party has two closet combinations, and both are tanks of a good make. The installations of the closets are on the same wall, but on opposite sides. It is an east and west wall, one closet being on the south side, and the other on the north. The latter is the one that sweats. This tank sweats winter and summer. These closets were installed last June by the owner.

Illinois. B. J. M.

The cause of the closet tank sweating is exactly the same that makes a glass of ice water sweat. The tank, when filled with cold water from the main, is chilled to a degree lower than that of the air in the room. Consequently if the air is very moist the moisture of the air will condense on the outer surface of the tank and cause the sweat you mention. That's what happens to a glass of cold water in a restaurant where the vapor moistens the air.

Perhaps the tank which sweats most is located in a room that has a more moist atmosphere from some local cause such as from a kitchen under it. The vapor from cooking pots can easily rise up through hallways, etc., get into an upstairs toilet room and so cause sweat on cold pipes, tanks, etc. We ask you to look into this. All ordinary vitreous china closet tanks having non-insulated walls will sweat when conditions are favorable for sweating.

OBSTRUCTED CIRCULATION CAUSES WATER TO BOIL IN TANK HEATER.

Editor, "Domestic Engineering":—The installation shown in Fig. 1 is not giving satisfaction, as it only heats the upper part of the boiler about 1 ft., and then the water boils and is, of course, noisy. Could you tell me where the trouble is, as I am at a loss to find it? This is a new installation.

New York. M. G.

The only reason that we can see for the water boiling in the heater before the range boiler is heated all the way down to the bottom is an obstruction of some kind in the circulation lines between heater and boiler.

The apparatus is connected up right, judging by the sketch. It should circulate perfectly, providing the circulation pipes are clear, well reamed, and not air-bound.

We believe the heater is really too large for a 40-gallon

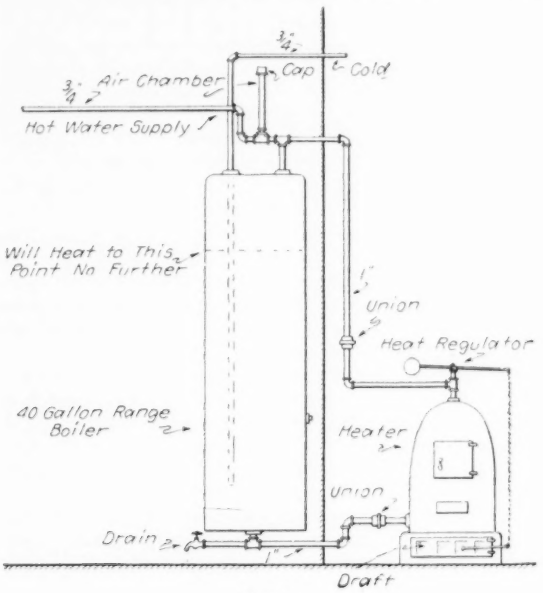


Fig. 1.

boiler. But then it should heat the boiler to the bottom all the faster for its great heating capacity.

The heat regulator certainly must help to prevent boiling, if it is set right and is in working order, and if the ash pit is connected air-tight so that the inlet of fresh air to the fire is actually shut off when the regulator closes the damper. You should look into this latter requirement, as it is essential to the proper operation of the regulator.

We advise you, to disconnect the union on return to heater; cap heater end and wash the boiler out into a pail as in Fig. 2. This is to prove that this connection is clear.

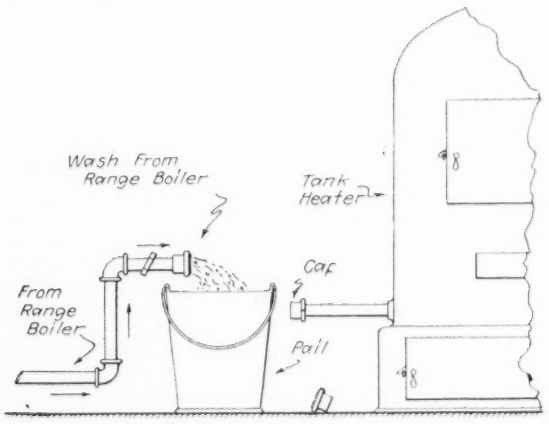


Fig. 2.

Then remove the cap. Place it on end of pipe from boiler. Slip the pail under pipe from heater, as in Fig. 3, and turn on the water again full force. Let it run to wash out heater and its flow pipe, and be sure that this runs free also.

If these streams do not run freely both ways, then disconnect all circulation piping. See that they are clear inside. Look through them. If rusted badly, renew them with brass piping well reamed at all ends.

If heater is too large, as we think it is, you can help matters by running a live fire only on one side of fire-box, having the other side banked with ashes. This can be done alternately from side to side and will very materially cut

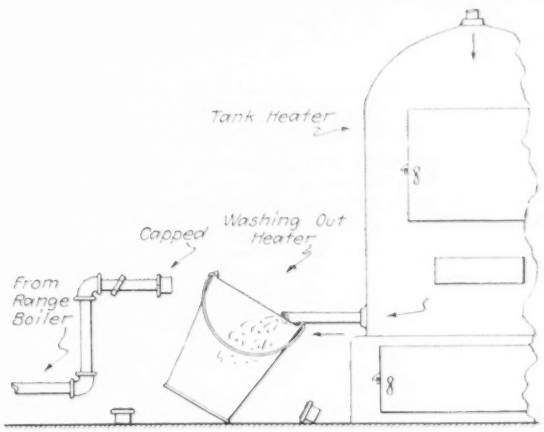


Fig. 3.

down the heating power of the heater. With clear free-running circulation piping, semi-banked firing, and a good working automatic heat regulator, you should have no trouble in holding the boiler full of hot water, always ready for an abundant supply.

A PROBLEM OF HEATING WATER BY STEAM COIL.

Editor, "Domestic Engineering":—We would like some information for a laundryman who wants to heat the water in a round open top tank, containing 100 gallons, situated above the water line of his power steam boiler. His idea is to use approximately 70 ft. (linear) of 1-inch pipe in the form of a coil placed or immersed in this tank of water and connected properly to the steam boiler with a return connected into the return from his ironing machines. He carries 125 lb. pressure. Starting with the water at 60 degrees Fahr., when he turns the steam on we estimate it will require 121,600 B. t. u. to raise the temperature to the boiling point, and 70 ft. of 1-inch pipe with steam under 125 lb. pressure will supply 29,404 B. t. u. per hour, requiring about four hours to boil the water.

Please check me up on this, and if I have made but a poor attempt at solving this problem, tell me how I should have gone at it.

Kansas. N. A. C.

The number of B. t. u. required to raise 100 gallons of water from 60 to 212 degrees is 126,666. We estimate this as follows:

212—60=152 degrees, the temperature rise.

100 (gallons) × 8 1/3 (lb. in gallon) × 152=126,666.

The size of the heating coil is given as 70 lineal ft. of 1-inch pipe which equals 24.2 sq. ft. of surface.

Steam pressure is given as 125 lb. or 353 degrees.

The consideration of 1 pound of steam at 125 pounds pressure gives off 865 heat units. 126,666÷865 shows that it is necessary to condense 146 pounds of steam to do the work.

The average temperature of the water is obtained as follows:

60+212=272. 272÷2=136 degrees, the average tank temperature.

The temperature difference between the average tank water and the steam is 353—136=117 degrees.

The heat transmission of coils submerged in storage tanks

is seldom greater than 500 B. t. u. per sq. ft. per hour per degree difference between the temperature of the steam and the mean temperature of the water, and to give this rate of efficiency the pipe must be new and clean. As submerged coils are soon more or less fouled we may safely figure an efficiency of about 400 B. t. u. per sq. ft. per hour per 1 degree difference. This is more nearly the probable rate of heat transmission.

We have approximately 24 sq. ft. of surface in the coil. 24×400=9,600 B. t. u. per degree difference. 9,600×117, the number of degrees difference,=1,123,200 which is the total number of heat units given off hourly by the 70 lineal ft. of 1-inch pipe with steam at 125 pounds pressure.

1,123,200÷60=18,720 heat units per minute.

126,666÷18,720=6.76+, showing that, under the conditions described, the tank of 100 gallons should be heated from 60 degrees to 212 degrees in about 6¾ minutes. To do this work we have available 1 sq. ft. of heating coil for a little over 4 gallons of water. As a matter of comparison, we have in ordinary tank heating service with low pressure steam, about 1 sq. ft. of heating coil to every 15 gallons of tank capacity.

AIR POCKET UNDER FLOOR SUSPECTED OF STOPPING CIRCULATION TO A HOT WATER RADIATOR.

Editor, "Domestic Engineering":—Fig. 1 is a rough sketch of a small heating plant which does not now give entire satisfaction. I would like to have you tell me why. The system was put in some eight years ago, and it seemed to be O. K. I did not hear any complaints, until two years ago, when the proprietor told me he could not heat the upstairs.

I went and let the air out of the radiators and the radiators got pretty warm, but not hot enough. The back rooms, as stated, were heated fine. One trouble is that two different families live in the house. The barber downstairs, and somebody else upstairs, and they are both depending on the same system. To save the coal bill the barber does not fire very hard as long as his back room is warm.

Please give me your opinion about the matter.

Colorado. A. F.

We can readily see why the radiator in the barber shop does not heat very well. The circulating head is too low for a fast circulation. To enable this radiator to heat better, means installing larger circulation piping to it, or in some way raising a loop to supply it similar to the method adopted for supplying the living room radiators.

Just why the two radiators on second floor do not heat is rather strange, because they are the best favored of all. It must be that they are air-bound somewhere, either in the piping or in the radiators themselves. Perhaps the floors have settled enough to change the alignment of the piping and so formed an air pocket somewhere.

We suggest that you put the level on the floor and see if any settling has taken place. If so, then the boards should be lifted and the piping lined up to proper grade to eliminate the air pockets.

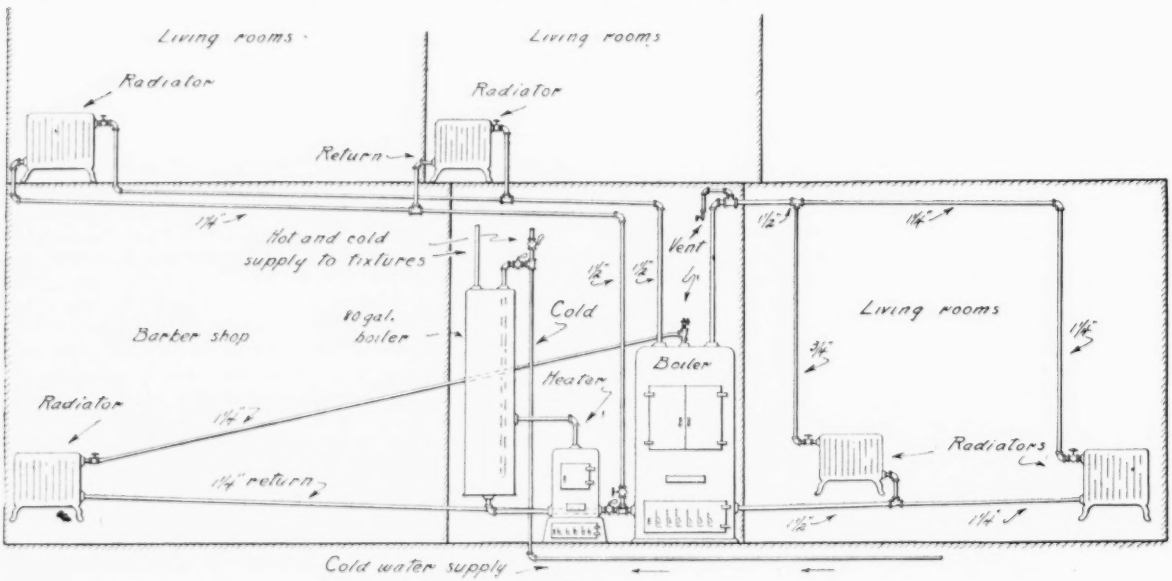


Fig. 1.

sketch represents a small building used for a barber shop, in front, and living rooms upstairs and at the back. It is a closed system with two heaters connected together and with an 80-gallon range boiler.

You will notice that the back room radiators are heated from overhead as are also the barber shop radiators, while the upstairs is heated from below. Now, the back room radiators work fine, but the upstairs will not heat, nor does the barber shop radiator heat very well.

You also will notice that it is arranged so that the biggest heater can be disconnected by shutting the stop cock between the two heaters, which is done in summer, when they don't need the heat. The system is not air-bound, there are air vents at both high points on the overhead part of the system.

You should also see that the air vents at the radiators are O. K., also the radiator valves.

We are sure that the upstairs radiators will heat the best of all, providing there is no internal obstruction to prevent the circulation. The circulation to these radiators is natural, and therefore reliable, if the passages are clear of air and other obstructions. The circulation to the first floor radiators has to be forced, because it is unnatural, being downward.

French Courts have decided good will of business cannot be transferred for an amount exceeding three times net profits in year preceding sale, and any other basis of appraisal will in the future be subject to cancellation and prosecution for speculation.

INCREASING PLUMBING BUSINESS THROUGH "MODEL HOMES"

Plumbing and Heating Contractors and Electrical Dealers of Denver Create Desire for the Best in Modern Plumbing, Heating and Electrical Work by Building a Home Equipped in this Manner and Throwing it Open to the Public.

AN educational advertising enterprise of a new sort, the model home, has great possibilities for the spreading of the gospel of high-grade plumbing and heating installation. Several of these model homes have been built and exhibited in various cities during the past year. In certain cases, newspapers have sponsored them. In others, the electrical industry has taken the lead, calling the home a "model electric home," but, while naturally emphasizing the electrical side, seeing that all features of the home were absolutely modern. In Denver, a home publicly exhibited for a month recently was financed by the electrical interests. This home was visited by 37,000 people.

Displaying bathroom fixtures, for example, in a salesroom is one thing. The plumbing trade in general has long realized its handicaps of merchandise display. A bathtub in the store or shop is only a bathtub. It is something altogether different in a tastefully decorated, quiet bathroom of a real home. And the same is true of kitchen or laundry fixtures, or a heating system.

This is why the model home enterprises should interest the plumbing trade. The idea calls for the construction of a home that is right up to the minute in every feature. Then the home is furnished throughout. When thrown open to the public, it presents the appearance in every way of an unusually tastefully furnished private home. The beds are all made up. There are records, already to be placed on the electric phonograph. The water is all ready to turn on in the bathroom.

A View of Bathroom, through Bedroom, in "Model Home" at Denver, Colo."

Naturally most interested to promote electrical interests, the Denver enterprise did a good turn for the plumbing trade by calling the attention of all visitors to the possibilities in convenience outlets, and electrical appliances, in making a bathroom of greatest service to its users. Each bath had a single convenience outlet, waist-high, close to the wash basin. This outlet permitted the ready attachment of various appliances—a small water heater, hair dryer, vibrator and other toilet or therapeutic appliances.

A duplex, or double, convenience outlet was installed in the tiling opposite the tub or shower, a few inches off the floor. The radiant heater, brought into service when the main heating system was not running, was operated from this.

In the kitchen, and again in the laundry, all visitors were told of the convenience outlets, and how they assisted the housewife. Over each drain board of the kitchen sink was a duplex outlet, for the operation of kitchen appliances. Each side of the kitchen had its baseboard convenience outlet. The laundry had convenience outlets for (each) washer, ironer, dryer, hand iron, and another for use with a portable lamp or fan. All these outlets, excepting the hand iron, which was waist high, were in the baseboard. Still another outlet was an outlet in the floor, so installed as to be waterproof. The attention of visitors was also called to the location of the laundry tray — in the center of the floor, where machines could be pulled up readily and the housewife or servant be able to get to it on all sides.

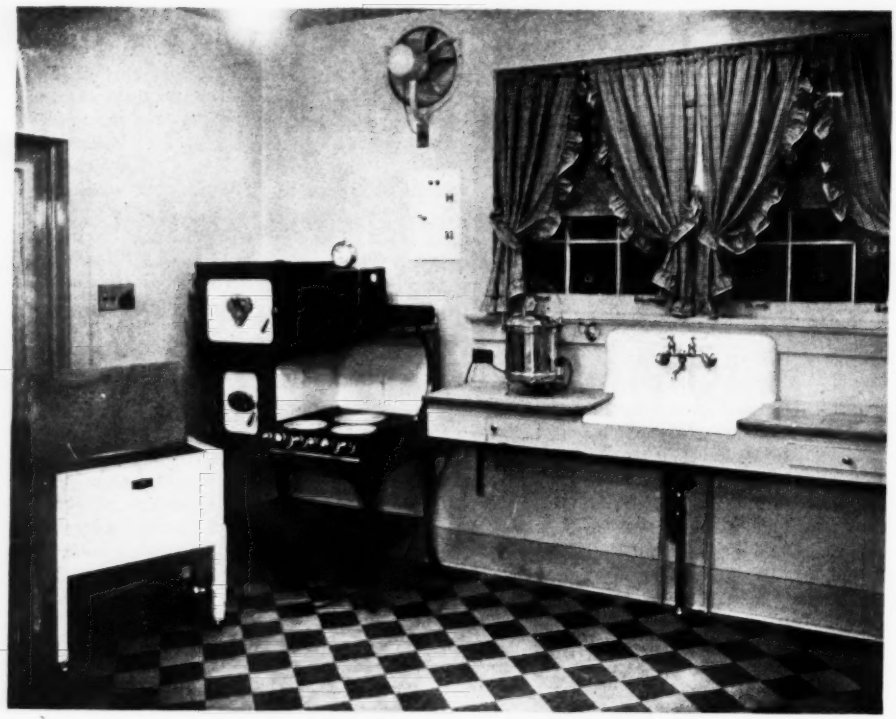
The electric refrigerator was located in the breakfast room, between dining room and kitchen. Provision was made for the necessary plumbing, connecting the refrigerator pump, in the plans for the building, so that all interests were facilitated.

Johnson & Davis, prominent Denver firm; made the plumbing and heating installations at the model electric home. They supply "Domestic Engineering" with the following particulars of fixtures used:

List of Fixtures.

First Bath:—A recess tub, shower and trimmings through wall, built-in controlling valve with china cross handles, needle bath with removable face and controlling rod, curtain rod and duck curtain. Closet:—China syphon jet bowl. Quartered oak, piano parlor saddle seat, wave line tank, nickel-plated supply pipe, wheel handle stop. Enameled iron lavatory, oval basin, rear outlet and apron all in one piece, enameled pedestal, china cross handle index faucets, standing waste and overflow with china knob. Built-in towel rod and soap cup for tub, tumbler holders, toothbrush holders. Tile floor and wall.

Owner's Bath:—Closet same, lavatory same as in first



The Kitchen in the "Model Home" in Denver, Colo.

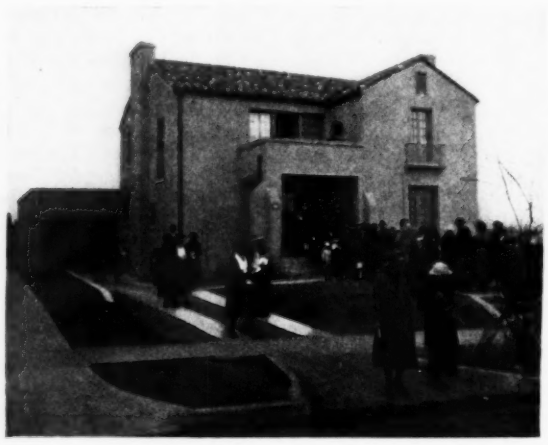
bath. Shower with concealed mixer valve. Shower built in, with lead safe under the tile floor; shower complete with rods, curtain, etc.

Servants' Closet, Basement:—Enameled iron, low down tank; birch mahogany seat.

Laundry:—Enameled iron roll rim laundry tray in one piece, with iron pedestal, soap dishes, wringer holders, mixing faucet with swinging spout. Floor drains.

Kitchen:—Sink one piece, with mixing faucet; set 36 inches from floor.

Garage:—Sand trap and sink.



The "Model Home" in Denver, Colo.

Wrought iron pipe used throughout. Stop valves to control all fixtures.

Heating Plant:—Hot water system; low radiators under windows.

Electric hot water heater in basement heating all water for domestic use. The model home cost to build more than $20,000. It was a type of home such as a large percentage of visitors didn't often enter. By exhibiting a reality, it sold to many a vision.

Domestic science classes from various high schools visited the Denver model home. Special receptions were held in some forty women's clubs, also such men's organizations as Lions, Rotary, Civic Association. The home was open afternoons and evenings, the period of exhibition covering about a month.

The method of demonstration was very efficient, in fact the handling of large crowds without seeming to "rush," and without confusion, aroused much comment. People were admitted to the house in groups of about a dozen. An auditorium type phonograph on the balcony overhead prevented people from growing restless while waiting for admittance. A guide, or demonstrator, met the group in the hallway, giving a three-minute talk. This talk was "standardized"—it had been prepared for the guide and then memorized by him. At the conclusion of his talk, the guide passed the group through to the living room, where a second guide gave a three-minute talk. If any questions were asked, the guide answered them. The group passed successively into the dining-room, breakfast room, kitchen, etc., then upstairs, where bedrooms and bathrooms were visited, then to the basement, where the laundry, etc., was shown.

In each room a guide gave a three-minute talk, then answered questions. There were two shifts of guides, 14 on each shift.

Compensation of Partners.

As a general rule one partner is not entitled to compensation for services performed in the course of the business of the firm in the absence of an agreement therefor, express or implied. The rule is not inflexible or of universal application. Where it can fairly be implied from the course of dealing between the partners, or from circumstances of equivalent force, that a partner was to be compensated, his claim will be sustained.—Supreme Court of Minnesota, in Sons et al. v. Sons, 186 Northwestern Reporter, 809.

Right of Buyer.

When goods are sold to be of a particular kind or quality, and there has been no inspection or opportunity of inspection, and the buyer relies on the seller to deliver the goods contracted for, the purchaser may, when sued by the seller for the price thereof, recoup in damages the difference between the value which the goods sold would have had at the time of delivery if of the kind and quality corresponding to the warranty, and the actual value thereof at the same time with the defects shown; and it is not a condition precedent to such right that the purchaser should have notified the seller and offered to return the goods.—Supreme Court of Appeals of West Virginia, in Dexter & Carpenter, Inc., v. Co-Operative Fuel Co., 111 Southeastern Reporter, 153.

LEGAL QUESTIONNAIRE

*Can I Sue the Administrator of An Estate as An Individual Where He Had No Power to Bind the Estate?—This Question is Answered in a Most Careful Manner**

By "The Judge"

Plumber May Have Right to Sue Administrator of an Estate as an Individual Where Latter Had No Power to Bind the Estate.

Editor, "Domestic Engineering":—Please answer this question through your Legal Questionnaire column. We installed a job in a house seventeen months ago. It was ordered by the administrator of the estate. It was a job of soil pipe with connections to the sewer. The administrator kept putting off payment until finally we placed the claim in the hands of a lawyer for collection. The lawyer informs us that he cannot collect the bill as the estate is entailed. Please let us know if we cannot find some way of collecting the bill.

Georgia. C. J. T.

Answer:—As you state that you have sought the advice of a lawyer in your matter, I hesitate to criticize his opinion, but I cannot help feeling that you must have misunderstood the reason why the claim cannot be collected. I say this because, in Georgia, estates tail, which you meant when you said "the estate is entailed," was abolished many years ago by statute. The Code of the State of Georgia, Section 3085, reads: "Estates tail are prohibited and abolished in this state. Gifts or grants to one, and the heirs of his body, or his heirs male or heirs female, or his heirs by a particular person, or his children, or his issue convey an absolute fee. Estates tail being illegal, the law will never presume or imply such an estate."

It may be that the construction which the courts have placed on this statute would not prohibit a sort of estate tail, under certain circumstances, which have arisen in the particular case you have become a party to.

If your bill cannot be paid by the administrator in his official capacity as a representative of the estate, because he was dealing with real estate, which, under the Georgia statutes, goes directly to the heirs, as it does in most states, and because he had no right under the law or under the circumstances of this particular estate to make contracts which would be binding upon the estate, I see no reason why you have not a perfectly good right of action on your claim against the administrator as an individual and entirely apart from the fact that he is the administrator.

Under Section 3437 of your code, it is provided: "The administrator may make contracts for labor or service for the benefit of the estate he represents, upon such terms as he may deem best, and all such contracts, made in good faith, shall be a charge upon and bind the estate whenever the same are approved by the ordinary of the county."

Now this statute applies, probably, only to contracts which the administrator had a right to enter into, such as boarding a horse, repairing an automobile for sale, etc., and might not be held to apply to contracts made in connection with real estate, which he has no control over except to sell for purposes of distribution or to pay the debts of the estate. It probably would be held that he could make contracts, in an emergency, to preserve a building from serious loss or damage, etc.

It may be that the reason why your lawyer stated that you could not collect was because the time for bringing suit against the estate had gone by, either because of your own delay or his own. Assuming, for the purpose of answering your question, that you have no right against the estate, because for some reason the estate is not liable as a matter of law and never was liable at any time, then your remedy is against the administrator as an individual.

Except where the court allows it, and in other cases under your statutes, not material, an administrator has no right to carry on the business of the deceased person. Also, except in certain cases which would not seem to include your facts, an administrator has no right to bind the estate by contracts made after the decease of the person who left the estate. If he does make such contracts he does not make the estate liable, but makes himself personally liable.

This rule is based upon the proposition that an administrator cannot bind the estate by his contracts, except in certain specified cases, such as arranging for burial expenses, the purchase of tombstones, the securing of legal advice, and such matters.

It has been held with regard to personal property that an administrator may be properly credited with amounts necessarily expended for repairs while it is in his custody. With respect to real estate, however, the administrator is not, as a rule, entitled to the immediate control and possession thereof, and hence he is not usually entitled to credit for amounts expended in repairs of improvement of the real estate. Where, however, he is duly invested with the control of management of such property, he may be allowed credit for what he has expended in good faith on repairs. An executor (who is an administrator who is acting under a will) is, of course, protected in carrying out the provisions of a will with reference to the improvement of the real estate of his testator. It has also been held that where an administrator collected rents and charged himself with the receipts, he is entitled to deduct money paid for repairs.

Your first decision should be whether you are satisfied that you have secured competent legal advice. It may be that you have done so and have not understood exactly what the situation really is. I say this because I cannot help feeling that somebody is liable for your bill. If, under the law, the administrator had no right to bind the estate to pay your bill, he is personally liable for it. Assuming that your claim has not been outlawed because not pressed soon enough, you surely must have some right of action against either the estate or the administrator, or at least against the heirs on the ground that the administrator was acting as their agent in having the repairs made.

It might be that upon sufficient investigation it would

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*Every Effort is made to the End that these Answers may be authoritative. However, we cannot assume any Responsibility because of the Very Nature of the Service, which is rendered without a personal interview.—Editor.

develop that the administrator was acting to preserve the real estate for the heirs, that he would be entitled to reimburse himself from the estate if he should pay your bill, and that therefore you have a right of action against him.

Your course, then, should be to find out for a certainty that the reason given you by your lawyer, to the effect that the estate is entailed, is the real reason why you cannot now collect from the estate. The best way to find that out is to pay another lawyer a few dollars to answer that question for you. If you find that for that reason, or some other reason, the estate itself is not liable, I believe that you still have a chance to recover the amount of your bill from the administrator upon his own personal agreement.

You can realize that without knowing more about the estate and the other facts surrounding your case, I cannot state more definitely just what your rights are, but I am of the opinion that you have a good claim which you can collect.

Recovery Allowed for Installing Heating Systems.

In an action brought to recover for labor and materials furnished in installing two separate heating systems, the Supreme Court of Rhode Island says (115 Atlantic Reporter, 645) that the plaintiff's declaration alleged that said systems were installed in accordance with a special agreement entered into by the parties; that the price agreed upon for installing the two systems was $4,823. The trial of the case resulted in a verdict for the plaintiff for $4,394.50.

Before the work was commenced the plaintiff prepared specifications and also a written contract, but the contract was never executed. The testimony showed that the parties agreed that certain named down-draught boilers were to be installed as a part of each system, and that the cost price for installing the two systems was $4,823. The unexecuted contract contained the following clause:

"This heating system, if installed in accordance with the plans and specifications, will heat building referred to herein to 70 degrees inside temperature when outside temperature is zero."

The houses in which the heating systems were installed were in the process of construction when the agreement between the parties was entered into and the chimney in one house, at least, was partially erected. Each chimney was constructed with a flue 12x12 inches. The plaintiff testified that he told the defendant's agents that the boilers specified required a chimney flue 16x16 inches, and that the defendant through its agents agreed to assume the risk of the flues being too small. The defendant denied that it agreed to assume said risk. The plaintiff admitted that each of the systems as installed by him failed to produce a proper circulation of steam, and that coal would not burn freely under the boilers. The plaintiff contended, however, that the unsatisfactory results were not due to any fault in the systems but to lack of draught resulting from the construction by the defendant of inadequate flues, and the use of each chimney in connection with a separate system for heating water.

Before suit was commenced the defendant ordered the plaintiff to remove the two boilers. The plaintiff refusing to comply with this order, the defendant substituted other boilers of a different type for the boilers installed by plaintiff, and stored the latter boilers on the premises.

The primary issue to be considered in this case was: First, whether the failure of the systems to function was due to the chimney flues being of insufficient size; and, second, if the flues were too small, did the defendant agree to assume the risk of flues 12x12 inches being inadequate? There was testimony which, the court thinks, warranted the jury in finding both of these issues in favor of the plaintiff.

The testimony showed that the defendant intended to retain and was using all of the two systems excepting the boilers, and there was no contention that it would cost the defendant any sum even approximating the contract price to make the alterations, including new boilers and extra radiation, which the defendant contended were necessary to produce the systems which the plaintiff agreed to furnish and install. The defendant decided to retain and was enjoying the benefits of labor and materials, furnished by the plaintiff, of a value clearly in excess of any damage which the defendant suggested by evidence that it had suffered by reason of the alleged breach of contract. It was not suggested that the plaintiff did not in good faith endeavor to strictly perform the contract. Under the circumstances the defendant was not entitled to be enriched at the expense of plaintiff, even although the plaintiff broke his contract. The justice who presided at the trial denied the defendant's motion for a new trial, and this court finds no reason for disturbing the verdict of the jury, which had the approval of the trial court.

All of defendant's exceptions are overruled, and the case remitted to the superior court, with direction to enter judgment on the verdict.

Issuance of Circulars Quoting Prices.

Obviously, the issuing of circulars by a corporation, company, or individual for advertising a commercial business, whether by giving the prices at which it sells its or his products or otherwise advancing its or his trade, is everywhere recognized as both necessary and legitimate; and the fact that other dealers in like commodities change their prices to conform to those stated in the circulars will not of itself justify an inference that the circulars were issued in restraint of trade, or in furtherance of a conspiracy or combination between the sender, and others influenced by them, to fix or control the price of the commodity advertised. It cannot be said that the mere sending out of such circulars to other dealers or customers is an unlawful act. To make it so, therefore, it must be shown that it was done with a previous understanding between the sender and those receiving the circulars that the latter would be controlled by the prices therein stated and change their own prices to conform to same. Where proof to this effect, and to the further effect that the changes in prices made by a party's circulars were not justified by changes in market conditions, seems to be lacking, however salutary the object of the statute against conspiracies to fix prices, or great the necessity of preventing illegal profiteering by its enforcement, one indicted thereunder should not be punished for its violation in the absence of such evidence as would conduce to prove beyond a reasonable doubt his guilt. This may, of course, be done by circumstantial evidence and without formal proof of a conspiracy by agreement; but the circumstances relied on to establish the conspiracy or unlawful agreement must be of such character as that the facts must be consistent with the hypothesis of guilt and, beyond a reasonable doubt, exclude every other hypothesis but that of guilt.—Court of Appeals of Kentucky in Commonwealth v. Hatfield Coal Co., 235 Southwestern Reporter, 722.

Substitution of Debtors.

The rule is well settled that the release of one debtor and the substitution of another may be implied from the facts and circumstances, though no express substitution is shown. And when the proof substantially tends to show that the creditor impliedly accepted the new debtor in the place of the old, and it does not appear that the creditor clearly intended to hold both the new and the old debtor for the debt, it is a question of fact for the jury as to whether there is a substitution and release of the old debtor.—Supreme Court of Mississippi, 91 Southern Reporter, 6.

STANDARDIZATION SUGGESTIONS

Arguments in Favor of Standardized Bibbs for All Fixtures, and for Heavier Trap Screws and Iron Pipe Threads on Clean-Out Fittings

By W. W. Hughes

Standardized Bibbs for All Fixtures.

IN the matter of standardization of plumbing methods and appliances, there is one phase of it which has received but very little consideration. Did you ever stop to think of the inconvenience, both in the installation, replacing and repairing of basin faucets? First of all, they must be set in putty (to prevent water running through the cock holes and down on the floor; then a chap must be a contortionist to get under the basin and make up the water pipe connections. Therefore, this suggestion comes to mind. Why not provide the cock holes in the back of the lavatory instead of the slab? The present location is merely a relic of by-gone days when slabs were of marble and it was natural and fitting that the bibbs should be placed through the slab, but times have changed, the world has made progress, and the construction of lavatories should follow suit.

Bath cocks are made 3½ inches center to center. Why not provide 3½ inch center to center measurements in the backs of all iron enameled lavatories, kitchen sinks, slop sinks and laundry trays? Think of the saving. The journeyman would not be called upon to rough in for bibbs at various distances apart. He would have one measurement and one only for 95 per cent of the work that he would be called upon to install. The present day bath cocks could be made into universal combinations that could be used on all of the various fixtures.

Preferably, the combination supply fitting should be made in such manner as would make it possible to bring a spud through the back of the fixture, then anchor it securely in place, so that this part of the fixture would not have to be disturbed for repairs or replacements.

Ease of replacement would increase sales over the counter which is most profitable business. One supply fitting for use on four different fixtures would enable one to carry smaller stocks and the use of the same fixtures throughout the house would result in standardization of the real kind.

Clean-Out Fittings.

Our plumbing ordinances invariably call for the installation of "clean-out fittings" at certain points, and about the only restriction that governs the construction of the clean-out fitting is that clause which provides that clean-outs held in place with lugs or bolts are prohibited. The result is that we install clean-out fittings made with trap screws. Now the fitting itself may be "extra heavy" but not one word is said about the cover and we find that these covers are decidedly light, even "extra light" as a rule.

Just by way of comparison, I find that the average brass trap screw such as is furnished in the usual run of clean-out fittings weighs eight ounces, and a trap screw regularly furnished in a well known water softening device weighs twenty-eight ounces. Considerable difference!

In practice, we usually install a clean-out fitting like the one shown in Fig. 1 at the point where the sewer pipes enter the house.

This fitting is from one to four ft. below the surface of the basement. It is surrounded by a small pit, of plank, concrete, steel, iron, or brick. In case of a stoppage, usually resulting from tree roots, it is necessary, first of all, to remove this trap screw cover. Bear in mind that this cover is down in a hole, elbow room is at a premium; the square knob on top of the trap screw is only one-quarter of an inch high. The wrench is clamped on and that knob is found to be just about as substantial as a lump of butter. Then the hammer and cold chisel are called into action and a few minutes later that cover is a battered piece of junk.

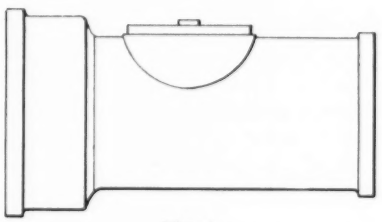


Fig. 1.

The sewer rod is inserted after some sort of a fashion, but the greater part of the energy expended in pushing the rod is wasted in trying to make the short turns that result from the installation of the fitting down in a hole and from the further fact that the rod must make a 90-degree turn as soon as it enters the fitting.

Effective or not, sooner or later the cover must be replaced. Then comes the problem. The trap screw, strange as it may seem, is not one with a standard iron pipe thread, but has a thread peculiar to the factory that made the fitting. The name on the fitting is cast on its side and is buried in the dirt. In fact, if it could be seen, it is hardly possible that it would be legible. If Lady Luck is with you, you may find one in your own shop or the jobber may have one that will fit, but the odds are against you, and you will probably plant

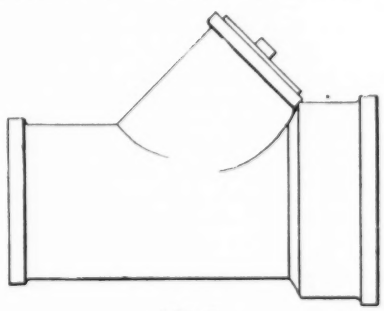


Fig. 2.

a couple of bricks on top of the hole and pray that you will get paid before the owner discovers what you have failed to do. Of course, you could install a complete new fitting, but most people have enough to pay for these days without having to pay for having the basement floor torn up and a complete clean-out fitting installed at an expense of from ten to twenty dollars when the job only requires a little chunk of brass that should weigh twenty-eight ounces.

It may be possible that there is need for a fitting of this

kind for installation in vertical stacks in partitions, but for real effective clean-out service, the "Y" clean-out pictured, shown in Fig. 2, is the only logical fitting where the pipe is close to the surface. Where the pipe is some distance below the surface, a regular "Y" extended up with a ⅛ bend and a trap screw clean-out fitting flush with the floor (see Fig. 3), offers the best solution. The installation of either of these fittings will give the proper sweep and will make it possible to get effective use from a sewer rod in cases of stoppage.

As to the threads, no fitting should be used which does

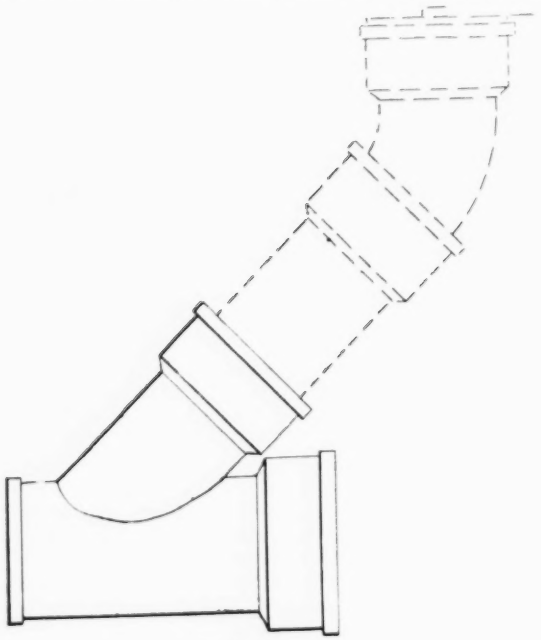


Fig. 3.

not have the standard iron pipe threads and the covers should be extra heavy, weighing at least twenty-eight ounces and be provided with a hexagon nut at least one-half inch high, making it possible to get a real hold with a wrench, and the standard iron pipe thread making replacement convenient and inexpensive.

This seems like a small matter, but in reality it is causing untold expense and inconvenience in hundreds of cases every day, and it is one of the petty things which causes the general public to look with no small amount of disfavor upon the plumbing contractor, because it is the contractor, who installs the job, or the "service" plumber, called upon to remedy the trouble, who gets the blame for this condition. And not only that, but every open clean-out fitting or fitting with an improperly fitted cover makes our sanitary plumbing installations decidedly unsanitary.

Correct installation is, to a certain extent, dependent upon the contracting plumber; proper construction of the fittings is up to the manufacturer; and the necessity for covering both installation and construction of fittings is a matter for consideration by those directly responsible for our various plumbing ordinances.

A Resident of Stamford, Conn., received a letter this week from Russia carrying postage stamps which, at pre-war prices, would represent more than $200,000 in American money.

Reports of Labor Shortages are increasing in number and including common labor as well as skilled and unskilled, according to a nation-wide survey by National Industrial Conference Board.

OVERHEAD, OR THE BENDED ARM—WHICH?

By Joe Osier.

"With Coarse Food to eat, water to drink, and the bended arm as a pillow, happiness may still exist"—

So Reads an old proverb which—

I Am almost tempted to believe—was first mouthed by a master plumber, in name only, who—

Told the World and every member of his association that—

Overhead is a myth, invented solely to scare timid children and panicky old men.

Don't Misunderstand me. I, too, think that happiness may be obtained—

And Retained—

In Spite of coarse food and water.

But, After hur-rahing for the 18th amendment, I think that most men of the trade—

Will Agree with me when I say that Overhead must be taken into consideration unless—

A Sheriff's Lock is urgently desired on the office door.

A Bended Arm for a pillow will serve in a pinch but, most of us, I feel safe in saying,

Much Prefer the necking which has for its component parts, the proper amounts of feathers and linen.

Yea, buddy!—happiness may exist no matter how humble the fare or mean the cot, still—

How Much Happier one can be parked behind savory viands or lying on a purple couch of ease and—

These Boons are within the reach of men of the trade—providing—

They Look neither to the right nor left without first adding at least twenty-five per cent for overhead.

Overhead is the verse—Overhead is the chorus. Let the happy voices ring out with this refrain until the heads of every supply house and bank in this Great Commonwealth grasp each man of the trade—

By His Toil-Worn Hand and call him—

Friend and Brother.

In Many Sections of these United States today, especially in the territories where—

Jobs have been as scarce as hen's bicuspids—

Since Bad Bill and his son, Silly Willy, quit cold—

Men of the Trade have been found guilty of buying contracts.

In Other Words—they threw their hooks where there were no fish only to discover—

To Their Sorrow that they were giving a first-class imitation of a sucker and that the sack they were left holding contained nothing but—

Emptiness.

They Forgot for the moment that—

"There is a Time to fish and a time to dry nets" and—

When They Realized the truth of this wheeze they came to know that—

They Had Transferred many "clanks"—

Ofttimes referred to as dollars—

From the Profit Pocket to the pouch with the bottomless pit.

Some Men, I have discovered, profit from their experiences; others "hang tuff" until—

Their Goods and Chattels are sold under the hammer—then—

They Resurrect their old clothes and renew their acquaintance

With the Boys who do the heavy lifting.

Oh, Well! They still have the bended arm.

Dodge City, Kans.—Aaron Ott is making arrangements to open a plumbing establishment at 214 Bridge Street.

GET KNOWN *and* THEN STAY KNOWN

EDITOR'S NOTE:—By using one of these Editorials each week in your newspaper advertising you will help to educate your community in the true facts of plumbing and heating merchandising. Such education will create good will and build your business. The more the public knows the better your service will be appreciated. Take one Editorial a week and reprint it in the upper left corner of your regular advertising space. Have it set in bold-faced type, with rule or border around it, as indicated on this page. This will cause the Editorial to stand out and make it easy to read. The use of these Editorials from week to week will not add a dollar to your advertising expense, but they will help along sales.

A FEW years ago in New York there passed away a little hunchback by the name of Marshall P. Wilder. He had smiled his way into the hearts of the great men and women of the world. He was intimately acquainted with more big business men than perhaps any man of his time. While he was called "The Prince of Entertainers and the Entertainer of Princes," he was a close student of business and advertising. He and his family lived well, and when he died, he left an estate of a quarter of a million dollars. As someone has said, "God gave him a crooked body with which to show men the straight road to success."

The writer of these Advertising Editorials called Marshall P. Wilder his friend. One day over a modest lunch Mr. Wilder discussed, as usual, his favorite subjects, advertising and business success.

"There are two very important things in business," said Mr. Wilder. "They are get known and then stay known. To get known a man must advertise, and then to stay known he must keep on advertising. A man in business who doesn't advertise either hasn't a business that is worth advertising, or he doesn't care about being a success. Then," after a moment, he added, "there is the man who thinks everybody knows him. He continually fools himself, for people don't know anybody unless he makes himself known, and then they forget him over night unless he keeps himself known."

The Value of Advertising.

Continuing his talk, Mr. Wilder made this statement: "Why," he said, "to appreciate the value of advertising just consider this: You will forget even the name of one of your friends if you don't see him or hear from him or have reason to think of him for five years. That's a fact. And to prove that it's a fact, try it some time."

Mr. Wilder practiced what he preached. He never lost an opportunity to advertise. For example, on his letterheads and envelopes he had printed under his name and address these words, "If the flag is out, he's in." But perhaps the words need an explanation. Mr. Wilder lived on the fifth floor of an apartment building in the uptown part of New York. From one of the windows overlooking the street there extended a flagpole. To save the time of friends and others who came to see him he adopted the novel plan of letting them know whether or not he was at home. When he was in, the flag was out; and when he was out, the flag was in. This did away with guessing, and saved callers the trouble and inconvenience of going up in the elevator, ringing the bell, and then going down again.

This sign of whether Mr. Wilder was in or out became so identified with him, and became so well known, that two men, who got into an argument over the value of advertising, agreed to settle the argument by putting advertising to a test. So they mailed a letter addressed thus: "If the Flag Is Out He's In, New York City." And Marshall P. Wilder received the letter without delay.

That is advertising. When any man or firm gets as well known as that, and then stays as well known as that, success is as sure as sunrise.

If someone should address a letter to your town and mark it for "Bath a Day Brown," or for the "Best Plumber," or for the "Preserver of Health"—if someone should do this, would the letter be delivered to you? If it would, then you have been doing some good advertising.

Stand Out from the Crowd.

Every plumbing dealer should advertise to get known and then advertise to stay known. And he should tie all of his advertising to a striking personality, or to a slogan, or to an idea. It does not cost a cent more to do this. All the while the personality or the slogan or the idea is serving to identify the dealer—helping him to stand out from the crowd—fastening his name in the public mind.

"If the flag is out, he's in" is a little thing. So is "Eventually—Why Not Now?" and "Live Outdoors Indoors," and "Ampinco Pete," and many other characters, signs and slogans. But it is such little things as these in advertising that help to make a dealer known to his community and then help to keep him known.

To be effective, advertising must do at least three things: Attract attention, create interest, make an impression. Unless it attracts, people do not read it; unless it interests, people do not follow it; unless it impresses, people do not remember it.

A Series—No. 32.

THE ONE BEST INVESTMENT.

MUCH is said about investments, and how the right investment will make you rich. You know the advice as well as you know your a b c's: Work hard, save a part of what you earn, invest your earnings in safe and sound securities. It is good advice, which, sad to say, is not always followed.

But were you ever told what your first investment should be? It is all important, for it is your one best investment.

Invest in gilt edge stocks or bonds, if you will, but don't fail to first invest in the Security of Good Health. Good health pays greater dividends than any security on the market. Without good health every other investment is so much trash.

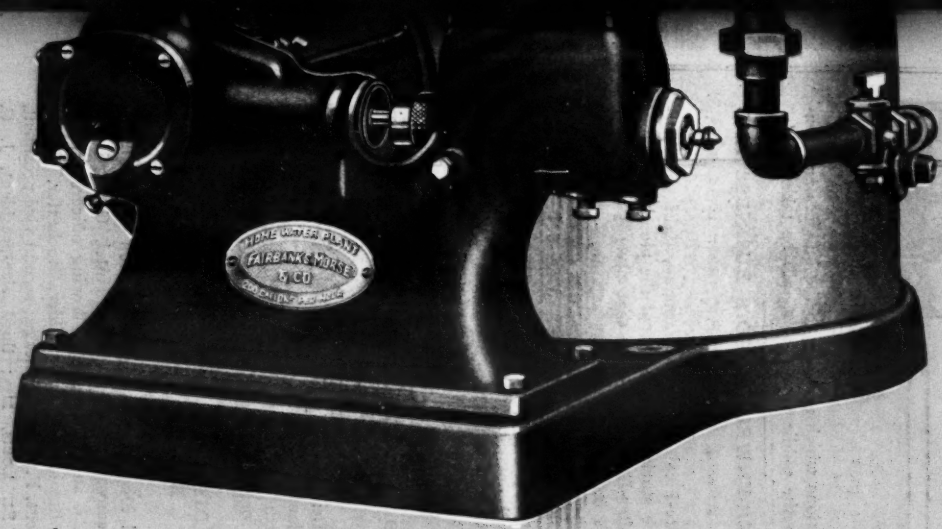
The first investment, which pays health dividends through all the years, is a well-plumbed, well-heated, well-ventilated place in which to live and work. Into this place put a well-equipped bathroom, from which the entire family will clip health and happiness coupons.

Also invest in a kitchen sink, laundry tubs, a washing machine and a vacuum cleaner, for they, too, are good dividend payers. They pay and pay, and anything that pays is worth having.

Here is the Proposition That Will Make Money For You!

NOW $125 F.O.B. FACTORY

When writing advertisers.



It's Automatic

FAIRBANKS-MORSE HOME WATER PLANT

A mighty movement for home improvements is on. Hundreds of thousands of dollars are being spent for home conveniences and comforts. Home Water Plants are in demand. Now is the time to tie up with a real proposition. Get the right plant at the right price and backed by the right concern. Everybody knows Fairbanks-Morse quality. The low price speaks for itself. Big advertising campaign now running in national publications. Don't wait. Mail the coupon for details NOW.

FAIRBANKS, MORSE & CO. *Manufacturers*, CHICAGO

FAIRBANKS, MORSE & CO., *Manufacturers*
900 South Wabash Avenue,
Chicago, Illinois.

Gentlemen: Please send, without obligation, full details of your dealer proposition on the Fairbanks-Morse Home Water Plant.

Firm Name .....

Town .....

State .....

AMONG THE WHOLESALERS AND MANUFACTURERS

AMERICAN CONSTRUCTION COUNCIL ADOPTS PROGRAM.

One of the first problems that the newly organized American Construction Council will tackle, in its efforts to improve conditions in the building trades of the country, will be the question of steady employment in the construction industry. This was decided on at a meeting of the Board of Governors of the Council, held this week at the New York residence of Franklin D. Roosevelt, former assistant secretary of the Navy, and president of the Council.

It was brought out at the meeting, at which Mr. Roosevelt presided, that if the obstacles to steady employment could be overcome, the cost of construction labor would be reduced, the housing shortage would be conquered, and the building and allied industries would be far better off than now.

The importance of this problem was emphasized at the recent meeting in Washington, D. C., at which the Council was formally organized, and when the Board of Governors convened, later, at Mr. Roosevelt's home, it was agreed that the matter should head the program for the work of the next twelve months. The consensus of the members of the Board was that with the average employment of workers in the building industry only 180 days out of the entire year, the annual earnings necessarily are small, even though the daily wage in certain branches of the industry has become almost prohibitive. Realizing that some of the unemployment is due to seasonal obstructions to outdoor work; some to lack of materials; and some to other causes that occasion intermittent employment of certain classes, the Board of Governors is nevertheless confident that a way can be found to remedy the situation.

Other items of the program adopted included:

1.—Steps to promote vocational guidance through the educational systems of the country, in order to raise the efficiency and workmanship, and to co-operate with labor in effecting a reduction in the national shortage of skilled building mechanics, and encouragement of proper apprenticeship systems.

2.—The immediate appointment of a committee to formulate a code of ethics governing all branches of the construction industry.

3.—Appointment of a Committee to undertake the work of gathering statistics dealing with projected construction work throughout the country, which will enable allied industries to gauge accurately the requirements of the country, and act as a check on over-production, or under-production of materials.

The Board of Governors also determined, at its meeting, that all meetings of the Council shall be open to the public.

"It is my own opinion," said Mr. Roosevelt, "that the greater part of the existing troubles in building work, and abuses on the part of certain individual builders and producers of raw materials, can best be eliminated by a thorough understanding on the part of the public of the causes which are responsible for them. The program we have drawn up for the immediate attention of the Council is, of course, only the preliminary undertaking of the organization. From time to time other questions which are vital to the builders and contractors, and to the public as a whole, will be taken up."

BUYS MILLER-ENWRIGHT CO.'S BUSINESS AND STOCK.

The Latourette-Fical Co., of Sacramento, Calif., has purchased the entire stock and property of the plumbing supply house of the Miller-Enwright Co., in that city. A three-story brick building is included in the transaction.

PENN ELECTRIC MACHINE CO. IN NEW LOCATION.

The Penn Electric Machine Co., of Des Moines, Iowa, has moved its business from 118 Eighth Street to Eighth and Park Streets in that city.

TO REBUILD PORTION OF PLANT DESTROYED BY FIRE.

The United Lead Co., of 111 Broadway, New York City, has tentative plans under way for rebuilding the portion of its plant at Perth Amboy, N. J., recently destroyed by fire. The plans call for an expenditure of $500,000.

NATIONAL DISTRICT HEATING ASSOCIATION ELECTS OFFICERS.

The National District Heating Association held its thirteenth annual convention at Breakers Hotel, Cedar Point, Ohio, June 20-23, and elected the following officers for the ensuing year: President, E. L. Wilder, Rochester, N. Y.; first vice-president, F. B. Orr, Chicago; second vice-president, L. G. Young, St. Louis, Mo.; third vice-president, J. C. Hobbs, Pittsburgh; secretary-treasurer, D. L. Gaskill, Greenville, O.

ADDING TWO BUILDINGS TO ITS FACTORY.

The Trane Company, of La Crosse, Wis., is erecting two new buildings on a plot of land adjoining its factory in that city. One building now nearing completion will give the company 5,400 sq. ft. of additional floor space, and it will be used as assembling building for the company's products. The other building, which is to be ready about September 1st, will house the company's plating division. Both structures are to be one story and of brick construction.

GEORGE E. KITSON BUYS PARTNER'S INTERESTS.

The partnership heretofore existing between George E. Kitson, Thomas H. Livezey and Edgar E. Schmidt, carrying on business under the style of the George E. Kitson Company, at 1215 Filbert Street, Philadelphia, has been dissolved by mutual consent, George E. Kitson having purchased his partners' interests in the firm. Mr. Kitson will continue the business under the name of the George E. Kitson Company, at 5029 Chester Avenue, Philadelphia.

CALLED BY DEATH.

Fred Kruecke.

Fred Kruecke, one of the founders of the Kruecke Bros. Manufacturing Co., manufacturers of plumbing specialties in Milwaukee, Wis., died last week at his home in that city, in his 62nd year.

Walter H. Duckworth.

Walter H. Duckworth, cashier and assistant treasurer of the National Tube Co., of Pittsburgh, Pa., died June 26th at his home in Ben Avon, Pa., after a long illness. He was born in Brooklyn, N. Y., and received his education in that city. As a young man he secured a position in the accounting department of the National Tube Co.'s New York office. Twenty-five years ago he was promoted to the position of cashier, and five years ago he was made assistant treasurer. When the company transferred its general offices to Pittsburgh he moved to that city. His wife and a daughter survive him.

Thomas Devlin.

Thomas Devlin, president and founder of the Thomas Devlin Manufacturing Co., of Philadelphia, Pa., died Friday evening, June 23, at his home in that city, following a long illness, in his 84th year. Mr. Devlin was born in Ireland, received a common school education in that country, supplemented by night school studies in the United States, to which he came at the age of 16. He began his business career as office boy with Thomas R. Wood & Co., in Philadelphia. In 1865 he obtained an interest in the Philadelphia Hardware & Malleable Iron Works, which later became known as Carr, Crawley & Devlin. He continued with this firm until 1880, when he retired. Some time later he organized the Thomas Devlin Mfg. Co. and served as its president until his death. He was also president of the Hardware & Malleable Iron Works and the National Specialty Co., of Philedalphia, and took an active interest in a number of business organizations, including the National Association of Foundrymen and the American Foundrymen's Association. Two sons were associated with him in his enterprises, William J. Devlin and Frederick M. Devlin.

THE JUNE TOURNAMENT OF THE NORTHWESTERN TRADE GOLF ASSOCIATION.

The Northwestern Trade Golf Association held its second tournament on Thursday, June 29th, at the Golden Valley Golf Club near Minneapolis, Minn. The event was favored with perfect weather, and about thirty members were in attendance. A good luncheon was served at noon and an elaborate dinner in the evening, both at the clubhouse. The prize-winners were: First prize, M. Sommers, of Murphy-Sommers Co.; second prize, A. J. Hutch, of Central Supply Co.; third prize, Mr. Jolliffe, of U. S. Radiator Corporation; fourth prize, Mr. Olson, of Kewanee Boiler Co.; and fifth prize, H. Sperzel, of Kewanee Boiler Co.; all of Minneapolis, Minn.

THE HOUSING SHORTAGE IN THE UNITED STATES.

Despite the increased building activity in the United States during the last six months, the housing shortage for the country as a whole was last week estimated as somewhat more than two and a half years' production by John Ihlder, manager of the Civic Development Department of the Chamber of Commerce of the United States before the National Conference of Social Work, at a meeting held in Providence, R. I. According to Mr. Ihlder, the situation is not the same in all American cities. In some cities the shortage is estimated as nearly four years, he said, while in others, it is approximately one and a half years, or even less.

"This means," he explained, "that many thousands of American families are still living in cramped quarters, well-to-do families as well as poor. More significant, it means that a considerable proportion of these families are becoming accustomed to this cramped living, accepting it as normal. I have heard of an Admiral of our Navy who, with his wife and two sisters, occupies three rooms in an expensive apartment house and has his meals prepared on an ingenious little electric stove in the hall, and I also have heard of a comparatively well-to-do woman who occupies one room and bath and has her laundry washed in the bathroom. When one goes from such people to the poor, he finds the old overcrowding accentuated and insanitary conditions worse than they were before the war."

Mr. Ihlder pointed out "that while we cannot expect house building to continue long at its present speed, we may hope that it will continue to exceed current increase of need and so gradually reduce the shortage. Coincidentally, we may expect that building prices will come down, not steadily—just at present they are rising from the lower level of the winter—but with occasional flats and ascents. This means that we may hope for dwellings produced and sold at smaller cost and so put within the means of a constantly larger proportion of the people until the day comes when the old procession is once more started from poorer houses to better houses and so make available to families of small means the old but adequate houses that are still habitable. At present there is an hiatus between the expensive houses under construction and the dwellings of the unskilled wage-earner. At present and for some years in the future, so far as we can foresee, there will be little or no building of new dwellings, at least in the east, for unskilled wage-earners.

"Desire for such dwellings is likely to expose us to an insidious danger; the attempt to cheapen construction by diminishing the space put at a family's disposal or by encouraging shoddy construction. The short cut of shoddy construction which has been, and still is to a lesser degree, one of our greatest menaces, promises to offer earlier relief, but at a cost which our children and grandchildren will not pay. The short cut of diminished space has amply proved its fallacy in tenements of New York. Its ultimate results will be higher rents for a population so crowded together that it cannot live, but will merely exist.

"From the housing point of view, the most encouraging development of the past two or three years is the extension of zoning regulation in the United States. Begun just before the war, zoning gripped our imagination and as soon as peace returned American cities began to apply it. Today some sixty cities have or are drafting zoning regulations. Because of these zoning regulations they are keeping in their residence districts the open spaces which are the fundamentals of good housing."

INTERNATIONAL CHAMBER OF COMMERCE TO MEET IN ROME, ITALY, NEXT YEAR.

Several hundred representative American business men will attend the second general meeting of the International Chamber of Commerce to be held in Rome, Italy, during the week of March 19, 1923, according to an announcement made today by the American Section of the Chamber. The meeting will bring together leading business men from all over the world for a discussion of world trade problems. Sixteen countries affiliated with the International Chamber will send delegates, while several other countries which have made application for admission to membership in the Chamber will be represented.

An extensive tour is being arranged for the American delegates in connection with their attendance at the Rome meeting. A large, Trans-atlantic liner, engaged for the delegates, will sail from New York on February 10, returning May 5, a

total of eighty-four days. The party will make a tour of the Mediterranean, the Near East and Western Europe. Optional trips will be offered for the benefit of delegates who may not want to devote so much time to the tour.

The tentative itinerary selected is: New York, Funchal, Madeira, Gibraltar, Algiers, Monaco, Genoa, Naples, Athens, Constantinople, Alexandria, Cairo, Haifa; returning to Naples and thence to Rome, where the party will spend ten days; following the meeting of the International Chamber the party will proceed to make a tour of leading industrial centers of Italy, France, Switzerland, Belgium and Germany. The continental cities included in the itinerary are: Florence, Pisa, Bologna, Venice, Milan, Como, Bellagia, Lugano, Lucerne, Zurich, Basle, Francfort, Dusseldorf, Brussels, Louvain, Antwerp, Malines, Paris, London, returning to New York by way of Southampton.

Plans are being made to have the party entertained at the various places visited. A. C. Bedford, vice-president of the International Chamber of Commerce for the United States, is directing the arrangements for the trip. In the opinion of Mr. Bedford the tour will afford the business man an excellent opportunity to acquire first hand knowledge of economic conditions abroad.

BANKING CONDITIONS AN INDEX OF BUSINESS PROSPERITY.

Evidence of returning business prosperity is shown in a survey by the National Bank of Commerce in New York based on recent reports of national banks to the Comptroller of the Currency. Recovery has been more marked in cities than in rural communities.

"Banking prosperity, it is commonly assumed, bears a well-defined relation to general business prosperity," the bank says in the July number of its magazine, Commerce Monthly. "A study of the condition of the banks of the country compared by geographical districts should therefore give some important indications of the relative position of the business cycle in different types of communities. The movement of certain items in the combined resource and liability statements of banks is indicative of the general condition of banking. Important among such items are loans and discounts, demand deposits and borrowings.

"Loans and discounts significantly reflect bank assistance to the business community. When business is active, expanding loans and discounts are expected. It is obvious that in a credit economy such as our own a relatively large amount of bank assistance is needed when a relatively large volume of goods is being regularly produced and marketed. But it does not follow that loans are, or can be, reduced in proportion as business activity declines.

"The recent movement of loans and discounts would seem to indicate improving business conditions in some communities prior to the call of last March. For instance, loans for reserve city banks in the Pacific region have recovered considerably since last September, and slight improvement in cities of New England, the Middle West and the South can be read in the figures since the end of last year.

"It is a well-recognized fact that there is a close correspondence between the deposits and loans of commercial banks. A loan to a customer in most cases tends to swell his deposit account proportionately. In time of economic stress and readjustment it is not uncommon to find the relation ordinarily obtaining between deposits and loans considerably wrenched. After June, 1920, deposits began a considerable decline—a decline which has been greater than in the case of loans. Little difference between the progress of decline in city and country banks is observable, though it is noteworthy that the decline among the country banks began earlier and has been somewhat more consistent. In some districts among the city banks, the recession has been interrupted by temporary recoveries, particularly in the eastern district, which includes New York.

"No doubt this difference between city and country banks was largely due to the relatively greater activity of trade in cities, by which the flow of deposits tends to be maintained even in depression and thus provides the means for meeting withdrawals of funds and maturing obligations for money borrowed. On the other hand, country banks had relatively small amounts of cash coming in by way of current deposits and loan payments once the period of deflation was under way.

"With regard to the recent movements of the deposit figures as an index of business conditions, the conclusion seems plain that there has been more improvement recently in the cities than in the rural districts. On the whole, demand deposits in city banks have been increasing for the last six months, which is not so generally the case among country banks. The Harvard curve began about ten months ago to indicate improved business conditions, and city deposits seem to have followed suit after a lag of a few months. On all sides is heard the statement that conditions in agricultural communities are improving. Perhaps an increase in country bank deposits can be expected to reflect this within the next few months.

"The increase of bank borrowings for many months after the depression began is indicative of the strain imposed upon the banking community in meeting the demands of liquidation. Indirectly such an expansion of borrowings evidences the desirability of a banking system which keeps power in reserve to meet such unusual shocks.

"The hardship that the period of liquidation has occasioned in agricultural communities is directly reflected by the relative borrowings of banks in such communities. Borrowings of country banks increased up to the end of the year 1920. Moreover, the decline of their borrowings since that time has been only 35 per cent against the decline of 75 per cent for all banks. Decrease in the amount of borrowings continues to be the rule. This is a condition, of course, that is to be expected as coincident with easier money conditions, and precedent to a sustained business revival.

"Deposits in recent months have shown more tendency toward improvement than have loans. It appears that the process of liquidation has put commercial firms in possession of funds for meeting current operating expenses without resort to borrowing.

"In general, liquidation in city banks began earlier and moved toward completion more rapidly than in country banks, though liquidation seems still to be incomplete as far as borrowings are concerned. That country banks received considerable aid from the rest of the banking system during the period of stress is evidenced by the fact that their borrowings increased rapidly for several months after the turn in business conditions in the spring of 1920."

NEW BUSINESS VENTURES.

The following firms are reported as new in the plumbing and heating field:

C. R. Wilcox and C. A. Chapman, 115 S. 5th Street, Neodesha, Kans., plumbing.

B. Marx, 7908 Superior Ave., Cleveland, Ohio, plumbing.

Hollywood Cornice & Heating Co., 1258 Highland Ave., Los Angeles, Calif., heating.

H. R. Sales, 1004 Eagle Rock Ave., Los Angeles, Calif., plumbing.

Millman & Krouner, Catskill, N. Y., plumbing.

Harry E. Snart, Arapahoe, Nebr., plumbing.

De Mattei & Rosa, 575 Haight Street, San Francisco, Calif., hardware and plumbing.

S. Van Oort, 111 W. Hamlin St., Eaton Rapids, Mich., plumbing and heating.

INCORPORATIONS.

United Plumbing & Heating Co., Milwaukee, Wis., plumbing and heating.

National Heating & Ventilating Co., Milwaukee, Wis., heating.

Mowbray-Garretson Plumbing & Heating Co., Denver, Colorado, plumbing and heating.

Nicheols Plumbing & Heating Co., Louisville, Ky., heating and plumbing.

Archer Plumbing Co., of Houston, Tex., incorporated with a capital of $10,000.

BUSINESS CHANGES.

C. H. Pritchard, Schaller, Iowa, successor to R. A. Skinner, hardware, heating and plumbing.

M. L. Pellicciotti, 619 West Eighth Street, Los Angeles, Calif., plumbing and heating.

Ross & Charles Stratton, East Branch, Iowa, successor to P. J. Chappman, plumbing and heating.

Wm. Fulkerson & Ollie Butler, Blooomfield, Mo., successor to Wm. T. Toole, plumbing.

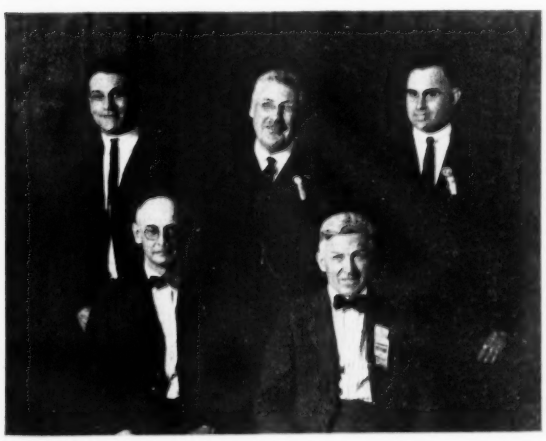
Personal Mention

H. C. Baumgartner, of Dubuque, Ia., has been appointed representative for the Beaton & Cadwell Manufacturing Co., of New Britain, Conn., to cover the state of Iowa and also the city of La Crosse, Wis.

E. W. Sanborn, of Sanborn & Lindeblad, Chicago, left this week on an automobile trip through the East to be gone about three weeks.

H. E. Maxwell has joined the sales force of the Monarch Engineering Co., of Dayton, O., to cover Iowa, Minnesota, South Dakota and North Dakota. He was formerly connected with the Leighton Supply Co., of Fort Dodge, Iowa, and prior to that with the National Utilities Co., of Milwaukee, Wis.

J. E. Murray and **F. W. McCormack,** representatives for the Central Brass Manufacturing Co., of Cleveland, O., for several years, have recently been promoted, Mr. Murray, having been appointed sales manager for this concern, while Mr. McCormack has been put in charge of the company's purchasing department and the production end of its business. This company has recently made several additions to its outside force and it is contemplating a large addition to its line of products.



J. Vernier, R. A. Baskerville, K. P. Gordon, Martin R. Bush and J. B. Caldwell, all of the Pierce, Butler & Pierce Mfg. Corporation, Syracuse, N. Y. From "Domestic Engineering" Photo taken at the Detroit Convention of the National Association of Master Plumbers.

TRADE LITERATURE

New Trane Bulletin.

The seventh edition of Bulletin 11, "Trane Data," has just been issued by The Trane Co., of La Crosse, Wis. The booklet, consisting of 24 pages, contains a large amount of information on vapor heating, with special reference to the Trane System. An important feature of the bulletin is the addition of 8 full-page blueprint plates, showing installation details for vapor heating systems.

Twenty Years Ago in "Domestic Engineering"

Saturday, July 5, 1902.

A New Arrangement.—The enameling plant of the American Sanitary Co., at Elizabeth, N. J., will hereafter be directed by the officers of the Colwell Lead Co., of New York. The plant at Elizabeth will continue to manufacture enameled ware, but the sales department will be transferred to the Colwell Lead Co.

New Plant.—The H. B. Sherman Mfg. Co., of Battle Creek, Mich., is building an addition 100x100 ft. This addition will add greatly to the capacity of the plant.

A New Warehouse.—L. O. Koven & Bro., New York City, have just completed a fire-proof warehouse, three stories high, with a floor space of 20,800 sq. ft.

Many Strikes.—Journeymen plumbers are on strike in various parts of the country. Strikes are reported from Vicksburg, Mississippi; Richmond and Norfolk, Virginia; Birmingham, Alabama; Toronto, Canada.

In Europe.—W. P. Powers, president of the Powers Regulator Co., Chicago, is traveling in Europe for the summer.

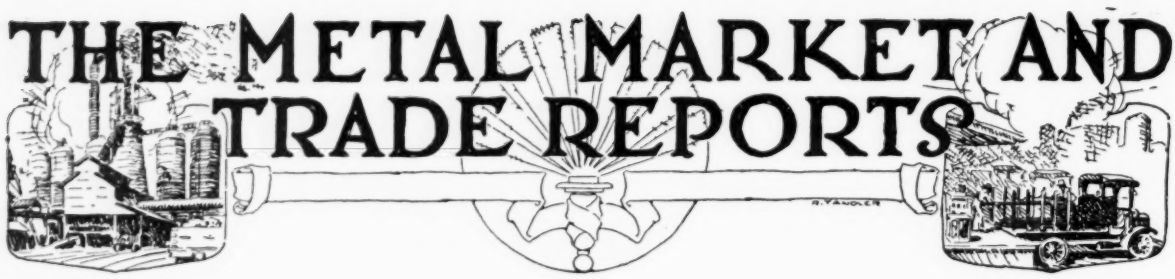
A Peculiar Strike.—Because one of the steamfitters at work for the Walker & Pratt Manufacturing Co., of Boston, had failed to pay his dues to the local union the other steamfitters quit work until the matter was adjusted. The Walker & Pratt Company decided that the matter belonged entirely to the union and declined to act in any way.

Breaks the Record.—The Boston Brass Co. shipped during the month of June 13,000 ball cocks and floats.

Oral Exemption from Written Obligations.

A party cannot, either by law or in equity, contradict or vary the terms of his written unambiguous contract by showing that, notwithstanding he signed such contract, it was with the oral understanding that he was not to be bound by its terms, and a plea averring such defense to an action upon such written contract will upon motion be stricken out because it sets up no defense to the action susceptible of legal proof. So in an action by the payee upon an unambiguous promissory note against the maker, a plea, averring as a defense thereto an oral, contemporaneous, collateral agreement between the parties, exempting the maker from liability thereon, sets up no defense to the action, and upon motion will be stricken out.—Supreme Court of Florida, in Forbes v. Ft. Lauderdale Mercantile Co., 90 Southern Reporter, 821.

THE METAL MARKET AND TRADE REPORTS



Steel and Iron.

The steel mills seem to be well filled with orders for the next two months, although there will be some physical drawbacks to a perfect mill operation. Lack of steel, labor, car supply, etc., is being felt; with these made right, there would be a record-breaking mill operation for this time of the year. It is evident that the coal strike has had little effect on mill operation. The leading interest has blown in two additional furnaces in the last week, and the leading pipemaking interest is operating nine furnaces. The prediction is that actual consumption in the next three months will materially reduce stocks, and cause full operation of all the mills in the Fall.

The sales of tubular goods remain heavy. Demand is fairly well distributed, except that there is less than the usual proportion of line pipe to the oil country. Demand for casing, etc., is very good, as is the demand for black and galvanized standard pipe. Butt weld sizes of pipe appear rather scarce, because some mills are not running as well in butt as in lap welt. Demand for boiler tubes i very fair.

The tubular goods prices are nominally on the same basis as for six months past. Operations at the mills have been approximately the same in the past month as in May. One or two of the independents are on the verge of increasing their operations slightly, as they manage to get more coke, while last Saturday the National Tube Company blew in its last furnace at Lorain. This makes all five of the Lorain and all four of the McKeesport furnaces operating, leaving idle only the smaller two Riverside stacks.

Production of sheets has declined a trifle, but this does not apply to full-finished sheets; every effort is being made to get out maximum tonnage in this line. The feature of the market is the pressure the automobile industry i making on the mills for heavier deliveries, finished. Premium prices are easily obtained for these, and while the leading interest's price is 4.50 cents, the minimum of the independents' 4.75 cents, and 5 cents is obtainable on early deliveries.

While there has been a slight decrease in the last two weeks, production is still very large, that of black sheets being well ahead of anything attained before the war. The independent sheet mills are running at an average of 85 per cent of capacity, against 75 per cent in April. The American Sheet and Tin Plate Company, for nearly three months operating 90 per cent of its sheet mills, went back this week to about 87 per cent.

The leading interest's sales in the last three months make a favorable comparison with anything in the past.

The market is quotable at a range, with the leading interest's prices as follows: Blue annealed sheets, 2.40 cents; black sheets, 3.15 cents; galvanized sheets, 4.15 cents; automobile sheets, 4.50 cents. The independents in general are quoting $2 a ton higher on blue annealed, $3 on black and galvanized, and $5 on automobile sheets, and in many cases getting their price. The tin plate industry has ended a remarkably good half year, with the deliveries into actual consumption at a new high rate for the first half of the year. Exports were light; the British makers took away considerable American business. It is estimated that the American mills lost in the half year about 1,000,000 boxes of ordinary Pacific Coast business, including British Columbia.

Pig iron continues its steady march upward. The low seller in the East advanced its price last week 50 cents per ton to $25.50, furnace base. Buffalo furnaces have stronger ideas as to prices. For instance, attempts are being made to get $25.50 or $26, base, whereas the previous maximum price had been $25. At Birmingham business in iron was not great outside of one large booking made by the one maker holding at $18.50. No larger buyer has appeared on the heels of the United States Pipe, which took 40,000 tons for third and fourth quarters. However, all other makers have held to $20 and have turned down business under that, being well cared for through third quarter.

New high prices are heard in the Connellsville District for coke. Foundry coke ranges from $9.75 to $10.25, and furnace coke ranges from $9.25 to $9.50, which are almost prohibitive prices in view of the present selling price for pig iron. Prices for pig iron are quoted as follows:

No. 2 foundry, Pittsburgh	$25.96
No. X East. Pa, Philadelphia	27.82
No. 2 Southern, Birmingham	18.50
No. 2 foundry, Chicago, furnace	23.50@$24.00
Basic valley, furnace	25.00
Bessemer, Pittsburgh	26.96

Copper.

The past week in the copper industry was one of slight improvement. Toward the close of the week all 13⅝ cents delivered material had been removed and there was less disposition to sell at 13¾ cents. Sales in June for domestic and foreign accounts are estimated at between 75,000,000 and 80,000,000 pounds. Consumers are gradually becoming convinced that prices will not go lower this year. They observe the stability of prices in the comparatively dull month of June, the labor troubles in the coal and railroad industry, the shortages of labor at mines and smelters, the slow production from the newly resumed mines and the rapid dwindling of the war surplus.

Tin.

The week in tin was rather uneventful with a slight net decline in all prices. At London standard tin was down 2s 6d. Spot Straits fell 17s 6d and Eastern c. i. f. London was off 15s. Straits tin in New York fell off ⅛ cent to ¼ cent, and sterling exchange was lower by 1¼ cents. The market is dull because of the holidays as most of the dealers are taking longer than usual to celebrate the Fourth. The closing price for spot Straits was 30.75 cents bid, 31.125 cents asked and settling price 30.875 cents.

Arrivals in June were 5,450 tons at Atlantic ports and 130 tons at Pacific ports, total 5,580 tons. Tin afloat is estimated at 6,270 tons.

Lead.

Buyers of lead have little disposition to contract far ahead. Producers quote futures at a slight advance over prompt. Some white lead interests are as much as thirty days behind in deliveries. There is a marked lull in new

business in pig lead. Prices are the same, at 5.50 cents East St. Louis and 5.75 cents New York.

Zinc.

Dealers in zinc are now on the buying side of the market. Indications point to higher prices because of higher ore and demands of labor for higher wages. Though as low as 5.275 cents East St. Louis was made at the beginning of the week, prices had hardened to 5.30 cents at the week's end.

Other Metals.

Quotations on other metals in New York are as follows:

Aluminum Powder .....60 to 61 cents per lb.
Aluminum in 50-ton lots, 99 and purer....20. cents per lb.
Antimony, Chinese brands..... 5.00 cents per lb.

New York Old Metal Market.

The following prices are current for old metals:

	Buying	Selling
Copper, heavy	11 to 11¼ cents	11½ cents
Copper, light	9¼ to 9¾ cents	10 cents
Brass, heavy	6 to 6¼ cents	6½ cents
Lead, heavy	4½ to 4¾ cents	5¼ cents
Tea lead	3½ to 3¾ cents	4⅛ cents
Crucible copper	11½ to 12 cents	12¼ cents
Zinc, new scrap	3 to 3½ cents	4 cents

Chicago Old Metal Market.

The following are the current prices for old metals:

	Buying	Selling
Crucible copper	11¼ to 12 cents	12½ cents
Heavy copper and wire	10½ to 11 cents	11⅜ cents
Light copper	8½ to 9 cents	9½ cents
Red brass	8¼ to 8½ cents	9 cents
New brass clippings	8 to 8½ cents	9 cents
Heavy yellow brass	6½ to 7 cents	7½ cents
Light brass	5 to 5¼ cents	5½ cents
Heavy lead	4¼ to 4½ cents	5 cents
Tea lead	3¼ to 3½ cents	3¾ cents
Zinc	3 to 3½ cents	4 cents
Block tin pipe	22 to 24 cents	24⅝ cents

In the New York Supply Market.

New York, N. Y., July 3.—The New York plumbing and heating supply market is reflecting the volume of business offered and other factors by firmer prices all round and advances in several lines, notably soil pipe and brass goods. There seems to be a better feeling among the jobbers this week, although with the corner now turned into July it is recognized that a period of comparative inactivity may be looked for in the near future.

Some jobbers, however, qualify the expression of this by saying that such a quiet period might be expected in normal years, but the present year is so abnormal in many respects that it would not surprise them if conditions remained good for some time to come. Some even go so far as to prophesy good business all through the summer and running through to the fall trade without any intermission at all. In support of this contention it is pointed out that the season was late in starting but has been gathering momentum ever since; and, still more significant, that there is a vast amount of building construction in the early and intermediate stages, for which plumbing and heating supplies have not yet been called for.

This argument is supported by the continued demand for soil pipe, one of the first lines of supply to be needed in new construction. This commodity is still heavily over-sold and manufacturers are rushing it off hot for shipment. It is almost impossible to get any promise of delivery by a definite date. The situation is complicated by the attitude of labor interests who are taking advantage of the heavy demand to put in a claim for higher scales of pay, which have apparently to be granted or have in many cases already been granted. Hence the price increase this week of 10 to 15 per cent, which some houses at this end have attributed to a determination among the manufacturers to hold up the market in its necessity, as reported last week.

Genuine wrought iron pipe also continues to show more activity in recent weeks. This reflects a moderate improvement in better-class building construction, both residential and office buildings.

Steel pipe is decidedly active but the further advance which has been so persistently rumored still fails to materialize. The increasing firmness of the market in this commodity, however, suggests that it may come at any time. If the market were as much over-sold in steel pipe as it is in soil pipe, the former line would doubtless have advanced some time ago, but the output continues to keep pace with the demand.

Brass goods are reported as making another advance this week, and this is stated to be based mainly on the recent advance in copper which enters very largely into the production of brass; something like 60 per cent. Any advance in copper is necessarily reflected in brass manufactured goods. Another factor that has caused this line to strengthen is the arrival of a great volume of new building construction at the stage where brass fittings are called for, and this increase in demand is having its inevitable effect.

It would seem probable that the same cause would react on the price schedules of bathroom equipment, which is increasing in demand, but so far there does not seem to be much expectation of a movement in this line. One reason is no doubt that bathroom equipment is relatively higher than brass manufactured goods, which have been down at low levels for some time past and are only beginning during the last two or three weeks to come into their own.

Heating equipment is in moderate demand for new building construction, but apart from the advance reported in boilers recently—which is being well maintained—there is not a great deal of activity in this line. The time when jobbers in heating equipment wear a pleasant smile is about two months hence, or a little later, according to the weather. Last year the winter was late in starting—some claim it never started at all,—and the result was a late demand and a more or less over-sold market. Jobbers and manufacturers will probably take care not to be caught napping this time.

"Brass goods are up again," said E. A. Pinchin, manager of the Wolverine Co. "I am not sure though whether it is general throughout the country or whether it is merely a special price quoted for the New York market; that was the way of it before when they took 10 per cent off the discounts here only and not in other parts of the country, possibly reflecting the greater building activity here."

"Soil pipe continues to be the feature line in the plumbing supply market here," said Walter D. Cavanagh, manager of the J. D. Johnson Co. "It isn't merely the volume of demand, but labor has noted that fact and is out for advances in wage scales. Some manufacturers say that to meet these claims will necessitate a 15 per cent advance, others are out for 10 per cent."

"Business is good at firm prices," said Tom Wade, of the T. A. Wade, Inc., "although there is still a certain amount of price cutting. One or two lines are advanced this week."

"A better demand at better price levels," said a representative of the Nason Manufacturing Co. "Generally speaking though, conditions are much as they were last week, apart from one or two advances."

In the Philadelphia Supply Market.

Philadelphia, July 1.—A canvas of the plumbing and heating supply trade here reveals an unusual amount of optimism for this period of the year. Philadelphia business buildings continue to loom up as feeders to a volume of trade already swollen by continued erection of residences, mostly of the better type. W. M. Anderson has landed the entire steam-fitting, ventilation and power plant, as well as plumb-

ing contract for the new Pennsylvania Apartment House, at 39th and Chestnut streets, a half million dollar proposition.

Bidding on this simmered down to a few well-known firms, but a fortnight ago it was learned by the writer that the Anderson concern had drawn up all the plans and a complete lay-out, so that this bid was considered as approved at that time. Installations in this building will be of the most modern, and the new apartment will probably set a record for buildings of the type in this city. In this connection, as a matter of general trade interest, there is likely to be an increasing demand for apartment house equipment here in the next two years, according to the estimates of local real estate men, as a growing percentage of families whose heads "go to business" favor apartment living as against the single or semi-detached houses hitherto typical of Philadelphia's residence districts.

W. M. Anderson is just winding up an old contract at the plant of the Viscose Company of America, at Roanoke, Virginia, the amount of which will run about $75,000. A new contract for the same corporation will shortly be gotten under way at Lewistown, Md.

Soil pipe is up about 10 per cent and deliveries are doubtful. Brass goods are stiff, but the re-opening of the Anaconda smelters has tended to take some of the stiffness out of anticipatory buying for stock, as it is felt that copper will be in plentiful supply by September, in quarters where raw material is watched closely.

J. Harvey Borton, of Haines, Jones & Cadbury Co., sums up the general volume of business, thus: "Plenty of selling, with prices for most supplies better than a month ago. Vitreous ware is steady and hard to get, the potteries making about all they can, and are behind in deliveries. Brass goods are selling more readily than formerly and there is business for everyone, although not quite at the profits there should be."

Prospects of a still greater activity in iron pipe for use in the city's water works system here increase daily. Frankford, the larger of the city's two major industrial sections, faces a water scarcity. The new elevated line to be open there in the Fall will increase the residential demands rapidly and as soon as funds are availible, acccording to Chief Davis, of the Bureau of Water, an entirely new plant must be developed to supply water there. The territory involved is nine miles long by five wide, and existing plans cannot reach out into it and continue to give passable service in old territory. Two million dollars will be required merely to start the work.

In the Chicago Supply Market.

Chicago, July 5.—The Chicago market in plumbing and heating supplies still remains very active, with prices unchanged and firm, as a general rule. One exception noted was an increase in prices on fire-box boilers.

Reduction in railroad freight rates is expected in many quarters to be reflected in the prices of supplies, and several jobbers are said to be contemplating changes in Chicago resale prices, but up to the present time nothing has been definitely announced.

Manufacturers in all lines are operating with greatly depleted stocks, and no opportunity has yet presented itself to build these up to normal again. As far as finishing material is concerned, stocks are further dwindling as the demand incidental to the finishing up of spring building comes in.

Enameled ware and pottery are reported as scarce, with the demand for these two important items ever increasing. This is also true of brass plumbing fittings.

Wrought iron pipe is enjoying a good substantial and firm market, which, while it has not swamped the manufacturers, as is the case in some lines, has given them plenty of opportunity to book orders as far ahead as they care to go.

There has been no let up in the demand for steel pipe, and it is still being booked at the old figures, although the manufacturers are far behind in their shipments at the present time.

The soil pipe business has developed into an "every man for himself" proposition as far as prices go. While some foundries have advanced, others have made no new prices at all, prevailing prices depending on the amount of individual stock available that the makers are desirous of having moved.

SURVEY OF BRITISH IRON AND STEEL INDUSTRY DURING MAY.

A state of "suspended animation" surrounded the British iron and steel industry throughout the month of May. Just enough animation continued in a constant flow of small orders to sustain the rate of activity attained up to the end of April. But any tendency in Great Britain toward progress as rapid as that experienced so far this year in America steel circles will remain suspended as long as the engineering labor lockout remains unsettled, according to U. S. Assistant Trade Commissioner H. B. Allin Smith, London, England.

From all quarters one has been reminded weekly that fundamental conditions of iron and steel production are steadily growing sounder; that the internal affairs of the industry are becoming more perfectly adjusted to an accelerated and much-anticipated buying revival. This improving trend has been overshadowed for a full twelve weeks by the dispute between the Engineering Employers' Federation and the Amalgamated Engineering Union. At the end of May, however, it seemed likely that a conclusion to this controversy would be reached early in June. Once the atmosphere is cleared of it, not before, the iron and steel trades will be released to show how far their plants are really "set in order" to develop and satisfy any latent home and foreign business. If, then, the metal trades can be put under way within a few months to produce even 50 per cent capacity, without further adverse developments, the whole industrial aspect of Great Britain will be altered from a spotty uncertainty, which has characterized business here since the opening of 1922, to an aspect of clear and hopeful revival. In the light of recent recovery of business activities in the United States, this course is naturally expected of British industry eventually.

Production in May (407,900 tons of pig iron and 462,300 tons of steel ingots and castings) was somewhat better than the level reached in April (394,300 tons of pig iron 404,200 tons of steel ingots and castings). Three additional blast furnaces were started during the month, making the total of active blast furnaces 110, but the output of these furnaces is just sufficient to meet day-to-day purchases, and yield steady prices without requiring any building up of pig iron stocks. The call for semi-finished and finished steel has varied little from the low level of April, except in meeting some continental and other foreign orders of relatively small proportions.

A reduction of both pig iron and steel stocks has gone along with a ready utilization of small output. Needless to say, makers and merchants are more than happy to be free of stock accumulations produced at costs higher than today's; and, moreover, when the expected buying movement starts, the entire industry will reflect its quickening influence from the retail dealers right back to the manufacturers, mills, and workers. For the sake of the British business community as a whole, it is to be hoped that the British iron and steel trades obtain this relief soon.

Iron and steel prices generally have maintained their level during the month; indeed, they can be expected to stiffen rather than to liquidate further when orders in volume are again forthcoming. Little concessions are, however, continuing here and there to strengthen the position of the producer in a way that will eventually bring his costs down to a normal profit-making basis.

AMONG THE PLUMBING AND HEATING CONTRACTORS

CHICAGO PLUMBING CONTRACTORS START TRADE SCHOOLS.

Contractors from the ranks of the Chicago master plumbers who are signed up in support of the Landis Award have co-operated with the Citizens' Committee to Enforce the Landis Award in the establishment of a complete trade school course in plumbing, the first class of which, numbering seventeen pupils, reported for instruction Thursday night, June 29th.

Plans for starting the school have been kept under cover until they were certain to be successful. The course was carefully worked out by a committee of Landis award plumbing contractors headed by John A. Corboy, to be of benefit to both beginners in the trade and journeymen who see an opportunity for advancement to positions as foremen and superintendents.

The beginners will be taught the rudiments of the plumbing trade both in theory and in actual practice through arrangements with the Landis award plumbing contractors. Journeymen with enough rudimentary experience will be taught how to read plans, how to lay out work, and other tricks of the trade which are beyond the training of the average journeymen. All pupils, either beginning or advanced, will be given a thorough drill in the Chicago plumbing code.

Applicants on the first night of the course were asked to fill out application blanks giving their past experience, where they had worked before, how long they had lived in Chicago, and what they thought they particularly needed instruction in.

The class met in a big third floor room in the Citizens' Committee employment bureau at 218 North Clark Street. Three big blackboards were arranged along the wall while benches served the purpose of seats and desks for the students. At one side on a table stood sections of fittings and other piping used in city plumbing work, and which could be referred to in the course of the lecture.

A special feature will be the co-operation of the instructors with the journeymen while actually at work on the job. Under the course as planned by the committee, the "professors" will visit each journeyman as often as possible during the week, watch his work under actual, everyday conditions, and seek to remedy any defects which develop during the instruction which follows.

BRONX MASTER PLUMBERS' ANNUAL OUTING.

The Bronx Master Plumbers' Association of New York City, will hold its annual outing on Wednesday, July 12, at Duer's Whitestone Landing, Whitestone, L. I. A boat will leave Clason's Point at 10 o'clock in the morning, giving the party a sail up the sound before landing at the grove. The outing committee, of which J. P. Muller is general chairman, has secured many valuable prizes which will be awarded to the winners in the bowling and other athletic events.

The Fuller Construction Co., of New York City, has been awarded the contract for the construction of the New York County Court House, at its bid of $4,130,000. The contract includes all the work except the plumbing.

ATLANTIC CITY MASTER PLUMBERS HOLD ANNUAL OUTING.

The ninth annual outing of the Atlantic City Master Plumbers was held at Tuckerton, N. J., on Thursday and Friday, June 29th and 30th. Fifty-four plumbers, salesmen and guests left John H. Moore's shop, 1707 Atlantic Avenue, at 2 o'clock Thursday afternoon and motored 30 miles to the Carlton Hotel at Tuckerton, where they were welcomed by the mayor of that city. At 4:30 the plumbers' ball team and the salesmen's team took the bat for the championship game. The features of the game were a double play by

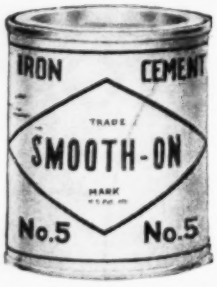
Snapshots taken at Atlantic City Master Plumbers' Ninth Annual Outing.

William Hepburn, a home run by Richard Turner, and the great fielding by Walthier. The game ended with the score of 31 to 29, in favor the salesmen.

A shore dinner was served at 7 p. m. in the Banquet Room of the Carlton Hotel, Alexander Vollmer's orchestra furnished music.

At 8:30 a grand street pageant and pyrotechnical display was started and lead by Yap's Yazoo Band.

After the parade the Tuckerton opera house was the scene of a very fine minstrel show. The artists were:



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It is almost impossible to caulk hub joints with lead in corners, confined places, on inverted fittings and horizontal lines and make absolutely tight joints.

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Easily applied, makes a tight joint that will stay tight under all pressures and temperatures.

No heat necessary—No caulking.

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Smooth-On Iron Cement No. 5 is sold by Supply Houses in 5 lb., 10 lb., and 25 lb. tins. Also in larger sizes.

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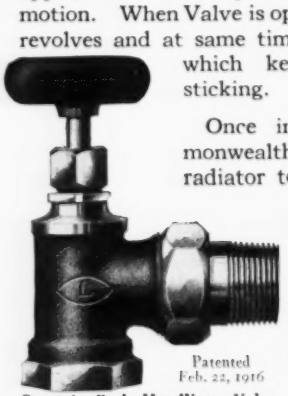
An Innovation

The Commonwealth (Lavigne) Hot Water Valve was brought out in answer to the demand for a valve that would not stick.

This was accomplished by making a new application of an old principle—the jack screw motion. When Valve is opened or closed, shell revolves and at same time raises or lowers, which keeps it free from sticking.

Once installed, the Commonwealth Valve is on the radiator to stay.



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Also manufacturers of a complete line of Steam Radiator Valves, including Lavigne Packless, Quick-Opening Valves.

Your jobber can supply you

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Interlocutor:—Edw. W. Yeutter.
End Men:—David H. Moore and Harry Walter.
Bones:—Harry Officer and Wm. Jackson.
Chorus:—Wm. J. Hepburn, Richard D. Turner, Walter M. Jannan, Robert Savill, Wm. Robson, Elmer Bloodgood, Edgar Dieher and Hiram Mathes.
Orchestra Leader:—Alexander Vollmer.

After this very enjoyable performance most members went to bed, and were awakened at 4:30 for roll call. Breakfast was served at 7 o'clock and by 8 all were aboard fishing boats and on the way to the fishing grounds. Lunch was eaten aboard the boats and the party returned in the early afternoon. After visiting Eddie everyone left for home sorry that the time for parting had come.

The committee in charge of the affair consisted of Walter M. Jannan, David H. Moore, Curtis Frambes and Edw. W. Yeutter.

PLUMBER'S EXHIBIT WINS PRAISE IN BERKELEY, CALIF., FAIR.

Charles W. Knights, a progressive merchant plumber, of Berkeley, took advantage of the recent Merchants' and Manufacturers' Fair, held in Berkeley, Calif., to do a little advertising both for himself and his craft.

The fair is an annual affair sponsored by the Chamber of Commerce. This year it attracted unusual interest and it was

The Exhibit of Charles W. Knights, at the Merchants' and Manufacturers' Fair in Berkeley, Calif.

estimated over 90,000 people inspected the exhibits. Mr. Knights planned his exhibit with great care and was well rewarded by the favorable comments heard on all sides. In fact, the newspapers and visitors generally voted it the best display of the show. Miltz & Melvin, of Berkeley, also had an exhibit.

CITIZENS DEMAND INSPECTION OF COMFORT STATION.

A citizens committee at Chippewa Falls, Wis., filed a complaint because of the failure of State Plumbing Inspector Morris to examine the comfort station now in the course of construction at that city. Explanation from the inspector's office that previous engagements and accumulated work prevented the official sanction of the Chippewa Falls new civic project apparently satisfied the committee.

Plans are Under Way for the construction of several hundred homes for officials and employes of the National Tube Company in Gary, Ind. Work will be started this year. More than $2,000,000 will be spent within the next twelve months in the building of homes to house the employes of the tube plant which is to be built there at a cost of $15,000,000.

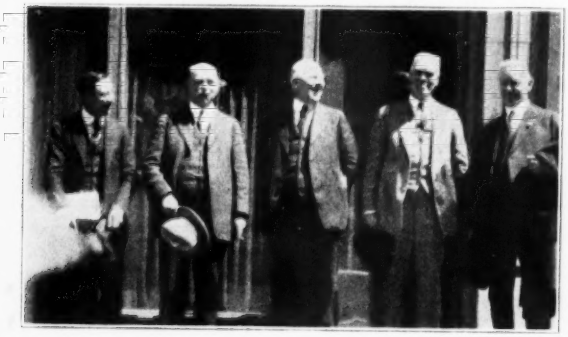
SAN FRANCISCO PLUMBING INTERESTS FORM SANITATION DEVELOPMENT LEAGUE.

The Plumbing Day Luncheon, held some time ago by the master plumbers, manufacturers and jobbers of plumbing supplies in San Francisco, has developed into a much larger, and a permanent institution for the promotion of interests of the trade as a whole through the co-operative efforts of all branches of the industry—"The San Francisco Sanitation Development League."

Meetings are held on alternate Fridays at the Palace Hotel, where luncheon is served, the meetings being divided between business sessions and sessions of open discussion of a general promotional nature.

Several meetings of all parties interested were held between the time of the first luncheon and the meeting in June, which marked the formal organizing of the new league, and at these meetings speakers from different lines of business and from various sections of the country spoke on the advisability and the possibilities of the scheme.

In the organization meeting a constitution and a set of by-laws were adopted, following which a board of directors was elected, the members of which are as follows: From the Master Plumbers,—James H. Pinkerton, Herbert Lawson



Officers of the San Francisco Sanitation Development League.—From left to right they are: Secretary L. J. Waldear, First Vice-President H. Morris, President James H. Pinkerton, Second Vice-President Thomas F. Leary and Treasurer C. W. Weld.—From "Domestic Engineering" Photo.

and Wm. P. Goss; from the Jobbers,—Ben. F. Blair, of Haines, Jones & Cadbury Co., C. W. Weld, of Crane Co., and H. Morris, of Holbrook, Merrill & Stetson Co.; from the Manufacturers,—Harry Noble, of the American Radiator Co., Thomas F. Leary, of H. Mueller Mfg. Co., and M. E. Wangenheim, of the Pacific Sanitary Manufacturing Co.

The Board of Directors, as empowered by the constitution, selected from their own numbers the following officers to serve for one year: President, James H. Pinkerton; 1st vice-president, H. Morris; 2nd vice-president, Thomas F. Leary, and treasurer, C. W. Weld. L. J. Waldear was appointed secretary.

The purposes of the organization can be summed up briefly, as follows:

To promote fellowship and encourage the interchange of ideas to benefit the crafts as a whole.

To encourage and further the work of the Trade Extension Bureau.

To help influence the public so that the health and economic value of these industries will be properly recognized.

To foster and promote trade expositions and all other educational mediums.

To act as a representative organization of these industries for receptions to visitors,—civic and community activities, etc.

Many members of the trade expressed themselves as enthusiastically in favor of the new idea, and it was advocated

Tank Fittings of Quality

1856 "McSHANE" 1922

The ORIGINAL Compound Lever Ball Cock
Elevated, Low-Down, Top and Bottom Supply
Tank Levers and Valves

McSHANE BELL FOUNDRY CO.
BALTIMORE, MARYLAND

A Truly Universal Flush Valve—

The Haas Universal Flush Valve

—operates with any standard size and type of bowl
—has right or left hand, top or bottom connection
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—no metal to metal parts to stick
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—closes positively—free from leakage or seepage
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—guaranteed for five years

Write for additional information, catalogue and prices

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"In UNION there is Strength"

UNION Tank Valve Balls are built for durable service. Only the highest grade rubber enters into their construction.

Like all UNION Plumbers' Specialties, this ball is a leader in its field.

Equip your tanks with UNION Balls and avoid tank troubles.

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Owned and controlled by
UNION RUBBER PRODUCTS CORPORATION, 213 West 33rd Street, New York

Humphryes Silent Pumper

Complete Unit Water Supply Systems

Designed to give the greatest possible working range consistent with high quality and economical operation.

Special superior features—Slow Speed—Silent—Self-Priming—Operates Safely at 100 lbs. pressure.

Sold only through Plumbing Supply Jobbers.

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Simple to Install
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by several that an effort be made to establish similar organizations in other sections of the state.

TO BOOST COMFORT STATIONS FOR NEW ORLEANS.

Plans for the establishment of modern comfort stations in the business district of New Orleans will be presented to the New Orleans city government within a short time, according to the statement of Leander Marx, member of the New Orleans Master Plumbers' Association and a director of the National Association of Master Plumbers. Mr. Marx was a member of the delegation that represented the New Orleans local at the national convention in Detroit. The rest of the delegation is now touring the principal cities of the East, collecting data on comfort stations and other sanitary improvements. "Comfort stations are recognized as a very real need," said Mr. Marx, "all of the principal cities maintain them now."

CARRYING GAS HEAVY WORK, MAINS SWEAT.

It costs the New Orleans Gas Light Company $10,261.47 a year to take the "sweat" off gas after it is in the mains and on the way to the consumer.

"Sweat" is the moisture that condenses at the lower temperature of the underground pipes.

Gas, as it escapes from the generating apparatus, contains water vapor and condensable hydrocarbon vapors, which are deposited in the form of liquids as the gas cools down during its passage through the mains. Water vapor contained in it is condensed. The mains are built on a slight pitch, with "drip pots" at frequent intervals. Into them the water

Mike Lawler, who for Fifteen Years has been Pumping the "Sweat" off the Gas in New Orleans, La.

flows, and is continually pumped out; otherwise, the pipes would be clogged up.

Seven men are employed by the New Orleans Gas Light Company to pump out this water. They do nothing but go around the city with hand pumps and clean out the gas sweat from the mains.

Renewal and replacement of syphon pipes and drip pots cost $600 in 1921; superintendence, to see that the work was done right, cost $400 more; the cost of the labor and attendant charges for cleaning off the sweat was $9,261.47—a total of $10,261.47.

LOUISVILLE JOURNEYMEN PLUMBERS WIN WAGE INCREASE.

The plumbers' strike in Louisville, Ky., is practically over as a result of the journeymen having stood together for a wage of $9 a day, while some of the larger master plumbers, with a good deal of work in hand, broke away from the organization and signed up at the increase of a dollar a day. Other master plumbers feeling that such shops would not only secure the cream of the new work coming out, but also secure most of the better journeymen in the city, signed up at once, there being about thirty of the smaller shops to follow the lead of the four large ones.

A few shops that were formerly union shops have become open shops as a result of the strike, some of these, however, paying the amended wage scale. It was decided that fighting the strike would prove a losing game as a result of the fact that there is so much work in hand that every good journeyman is needed, and there was danger of delaying building operations if the strike continued. Some of the master plumbers also took the attitude that the cost of labor would be passed on to the consumer anyway, and others took the attitude that during the long period of building depression plumbers did not ask an increase, or get one, while other industries were advancing.

New Concern Gets Large Contract.

Probably one of the largest plumbing contracts to be let this season goes to a new concern, and one that has not been heard of to any extent outside of the local trade. This contract is the big plumbing job on the new Belknap Hardware & Mfg. Co., twelve-story office and warehouse building, on which the plumbing alone will run about $125,000. The contract is held by the new plumbing house known as the Nicheols Plumbing & Heating Co., 105 South Second Street, formerly operated as Robert S. Nicheols, plumbing and heating. The new company was chartered on June 12 with a capital of $25,000.

Gray & Tompert have landed some nice business of late, chief of which is the new Joseph & Joseph apartments, including sixty apartments, and seventy-four bathrooms, work on which has started. This contract specifies all brass pipe for the hot water plumbing. The same company also has the Brooks Apartments, on Third Street, which includes eight baths, and plumbing for stores on the lower floor. Gray & Tompert also report work on the old Masonic Home, at Shelbyville, and the Toy residence in Audubon Park.

PHILADELPHIA TO HAVE STREET BATHS AGAIN THIS YEAR.

Repetition of the experiment, successfully essayed last year, of installing street showers in the congested sections of Philadelphia, is assured. South Philadelphia will get most of these out-door "bath-a-day" plants. These sprinklers are to be attached directly to fire hydrants in such sections as are approved by the fire department, and will be quickly detachable in case a blaze makes occasion for their use in the regular way.

CLEVELAND PLUMBING CONTRACTORS TO SMOOTH OUT LABOR TROUBLES.

As the result of an increase given laborers, a demand was made by the union plumbers and sewer pipe layers of Cleveland, for an increase of 10 per cent over last year's scale. E. F. Bohm, secretary of the Associated Plumbing Contractors of Cleveland, announced that the contractors would meet and consider the proposal. Thomas Lynch, secretary of the union, said that most of the contractors have agreed to pay the increase. It is also stated that the contractors

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PLUMBERS BRASS AND SPECIALTIES

THE PERFECT LUBRICANT
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GROUND KEY WORK

No. 4937

Makes Ground Key Work last longer and work easier.

A lubricant that will not soften in warm weather or harden in cold.

Wolverine Brass Works
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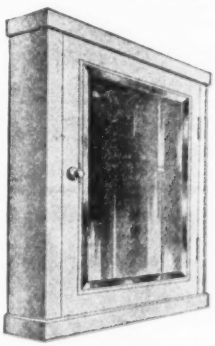
Wolverine Co., Inc., New York Wolverine Brass Works, Inc., San Francisco

Contractors and Dealers
everywhere are selling
HESS WHITE STEEL
Medicine Cabinets and Lavatory Mirrors



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This mark identifies—

HESS TRADE-MARK CHICAGO

it and guarantees the highest grade of material and workmanship and everlasting enamel.

Ask your jobber or write us for illustrated booklet

Hess Warming & Ventilating Company
1218 Tacoma Bldg., Chicago
Makers of HESS WELDED STEEL FURNACES

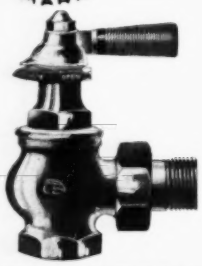
SAACO

You have, no doubt, seen our advertisements in previous issues covering various specialties. We trust you will not overlook SAACO brand Soil Pipe and Fittings made at our Linfield plant.
Our goods are right. Service and prices must be right.

Sanitary Company of America
LINFIELD, PA.

TRADE O-E MARK

Perfect Vapor-Vacuum-Pressure HEATING SYSTEM



Three systems simplified and combined into one — the most flexible, economical and efficient of any.

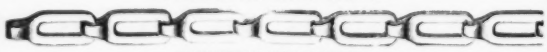
There are many good reasons why the "O-E" Perfect System should be used instead of water, gravity steam, straight vapor or vacuum heating.

Let us tell you how to convert unsatisfactory steam and hot water jobs into "O-E" "3-in-1" systems. The expense is nominal as compared with results.

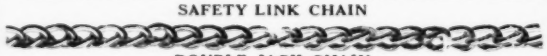
O-E Specialty Manufacturing Co.
884 Third St. Milwaukee, Wis., U. S. A.

PLUMBERS CHAINS

PLUMBERS LINK CHAIN



SAFETY LINK CHAIN



DOUBLE JACK CHAIN

UNIVERSAL CHAIN

THE SMITH & EGGE MFG. CO.
Originators of Sash Chain
BRIDGEPORT, CONN.

Bookkeeping and Cost Finding for the Plumber

By Wesley A. Fink

This little book has been the means of helping many a plumber to get his profits on the right side of the ledger.

A complete system of bookkeeping. Shows how to find the cost of running a shop, how to figure labor and material costs, overhead expense and how to price each item in order to show a profit.

Size 4½ x 6¾ in. 128 pages. Cloth. Price $1.00.

DOMESTIC ENGINEERING
1900 Prairie Avenue Chicago, Illinois

are in the midst of a building boom and builders are demanding completion of work at "any cost." The July meeting of the Associated Plumbing Contractors will be a meeting of grave importance, according to L. W. Webb, president of the association.

"Labor conditions still cause the association concern," he said, "and at the coming session all friction between labor and the contractors will be smoothed down if possible. No drastic action is contemplated and all difficulties will be remedied as amicably as possible."

Individual Contractors Active.

Much interest has been aroused among members of the trade as to who would be awarded the contract for the plumbing of the Union Trust Company's office building. It was learned this week that this goes to the Koblitz Plumbing & Heating Co. Complete arrangements have not, as yet, been made by the company. This building will be the second largest office building in the world, and will have more than 1,000,000 sq. ft. of space. The heating and ventilating contract was awarded to W. B. Van Sickle, and Mr. Van Sickle says that several carloads of pipe will be used in the vacuum heating system to be installed.

The J. Roemer Heating Co. has just completed the installment of plumbing in the McKinley School at West Park, and the plumbing construction in the new Avon Lake Village School will be started about the middle of July.

The Maskell-George Co., which recently was awarded the contract for Beach School in Rocky River, has already commenced work. The lavatory conveniences will be of the latest type, according to S. A. George, of this company.

More spacious offices are now occupied by the W. G. Cornell Company, which has just moved from 420 in the Leader-News Building to 639 in the same building.

LARGE PLUMBING CONTRACT ON FOND DU LAC, WISCONSIN, HOTEL.

The John F. Ahern Co., of Fond du Lac, Wis., has been awarded the plumbing and heating contract for the new Hotel Retlaw in that city. This is the largest plumbing contract ever awarded in the city. The hotel is to have 110 bathrooms, 110 water closets, 110 enameled iron bathtubs, 220 lavatories and 50 shower baths. Approximately 10,000 ft. of pipe will be used, half soil pipe and half water pipe. A circulation water system providing circulating ice water for every room will be installed together with fire protection system. The hotel will be eight stories high. The John F. Ahern Co. has also been awarded the contract on the new Marcoe Building Block to be constructed at Fond du Lac, Wis., at a cost of $30,000.

SOUTH PORTLAND, MAINE, MAKES ADDITIONS TO SCHOOL EQUIPMENT.

Contracts for the new South Portland high school have been awarded. Willey & Calhoun, of Portland, were awarded the heating and ventilating contract on a bid of $23,860, and the plumbing went to Reardon Bros., of Lynn, Mass., at $12,486. The total of all contracts on the building is $190,000 or $10,000 less than the appropriation.

South Portland is to expend several thousand dollars in repairing and renovating the sanitary arrangements in some of the older schools. The council has voted $5,000 for repairs.

Contracts for the new Deering high school have been awarded, the total cost approaching $611,000. The heating contract goes to Willey & Calhoun, of Portland, at $63,241, and the plumbing to M. A. Dame & Son Co., of Lynn, Mass., at $27,055.

Frank A. Rumery, of Portland, has been awarded the contract for water extension work in Auburn at his bid of $17,253. The bids ranged as high as $40,600 for the work.

MILWAUKEE STEAM FITTERS UPHOLD PROPOSED LICENSING ORDINANCE.

Milwaukee steam fitters were given a hearing before the judiciary committee of the common council in the council chambers at Milwaukee this week, when they upheld the proposed city ordinance licensing steam fitters and providing for an examining board. That such an ordinance is necessary to insure public safety is the grounds on which steam fitters are upholding the proposed ordinance.

The ordinance was opposed by speakers representing the National Association of Stationary Engineers, Milwaukee Real Estate Board, Apartment House Owners' Association and the Heating and Piping Contractors' Association. They contended that the steam fitters are attempting to restrict the trade to a few men.

According to an opinion given to the judiciary committee by W. J. Mattison, assistant city attorney, the proposed ordinance will be sustained by the courts if it can be shown that the measure is in the interest of public safety. A report of the committee will be read at the next meeting of the common council.

NEW ORLEANS MASTER PLUMBERS CONDUCT PUBLICITY CAMPAIGN.

The New Orleans Association of Master Plumbers is conducting a $6,000 advertising campaign, to extend over 13 weeks, the purpose of which is to "sell" confidence to association men who are held to the standards of their organization, and to educate the people into the latest plumbing installation.

The industry in New Orleans is getting out of the rut of looking for business only in new construction. There is a good deal more business available in houses already built, houses which have rudimentary and inadequate plumbing. The former business will take care of itself; the latter must be created by educational work.

The forty-three leading master plumbers in the city are co-operating in this campaign.

The organization, during its advertising campaign of a few months ago that won national recognition, adopted a shield guaranteeing "service, quality and reliability." This shield forms one of the principal appeals in the new advertising program.

The former advertising campaign was conducted through only one newspaper. The present one is being carried in every newspaper in the city. One ad a week appears, the same ad, running on different days in the three papers. The advertisements will be of different sizes, ranging from the quarter page display to the full page spread.

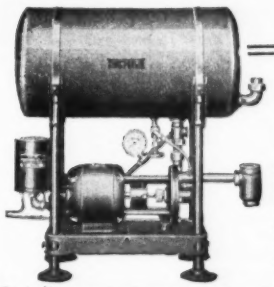
"Install new plumbing during the summer months while the labor is available," is one of the principal selling talks.

SAN FRANCISCO MASTER PLUMBERS CONSIDER BATH A DAY CAMPAIGN.

Master Plumbers of the San Francisco, California, Association are considering very seriously the advisability of going into the Bath a Day campaign on a big scale, and they were fortunate in having for a speaker at one of their recent meetings D. M. Kenney, of the home offices of "Domestic Engineering," where the entire campaign was originated.

Those present were much interested in hearing of the various agencies that are now supporting the movement, among them the American Gas Association and the National Trade Extension Bureau. The latter organization has greatly assisted in the campaign from the first, while the former, although but recently added to the ranks of "converts" has proven very active and shown a desire to co-operate actively in many ways.

Although local labor conditions have been occupying much



DECATUR

FIG. 300

Water Supply System

Comes completely assembled and tested as shown. No parts to wear and get out of order causing trouble and expense to user and dealer. It Stays Sold. First Profits are all Profits.

UNCONDITIONALLY GUARANTEED

Write for Prices and Discounts

DECATUR PUMP COMPANY, Decatur, Ill.

Sole Mfrs. of the Burks Pump

CROWN

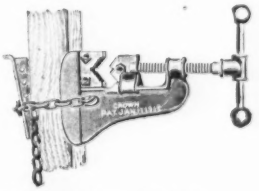
Post Pipe Vise

Holds Tight and Firm Anywhere

Can be attached to any wood or iron, round or square post, pole or tree.

Jaws of best tool steel, hardened and drawn. Will not crush or allow pipe to slip. Made in two sizes.

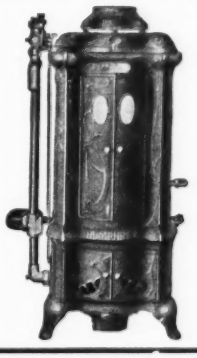
Write for particulars and catalog.



Ask your jobber for "Crown" Post Vises, Pipe Dies, Pipe Cutters, Etc.

CROWN DIE & TOOL CO., 555 W. Monroe St., Chicago

No Substitute For Hot Water

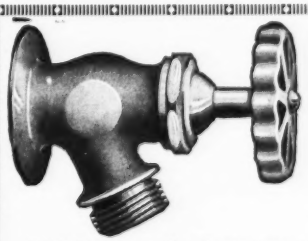


Your customers will thank you for helping them get it the guaranteed Humphrey way. Humphrey national advertising is creating big demand — your money making chance. Ask for catalog and sales folder.

Humphrey Company

Div.-Ruud Mfg. Co.

Kalamazoo, Michigan



PERU

Sill Cocks

Standard in Every Respect

PERU Brass Products are made of highest grade materials. Every piece bearing our trade mark can be relied upon for quality, service and durability.

Write for Details and Prices.

PERU BRASS & MFG. CO., Peru, Ind.

New York Representative:

MELVIN A. ROSENBERG, 108-110 W. 34th St., New York City

A Dependable Fire Pot

The DETROIT No. 50 is the latest improved plumber's gasoline fire pot. Heavy drawn steel tank, galvanized inside and out to prevent rust. Large filler funnel, dust proof cap; heavy malleable top plate; heavy upright; one-piece drawn shield; large automatic safety pump Adjustable needle valve regulates fire. Improved generator is easily removed and cleaned without dismantling pot. A high grade article in every respect.

Write for Catalog D

Detroit Torch & Mfg. Co., Detroit, Mich.

New York Office: 45 Warren Street

No. 50

ZECO

A vitreous china tank with a set of real fittings

ZWERMANN COMPANY
Robinson, Illinois

Announcement

A New Backwater Float

Non-corrosive, will not break or dent

Guaranteed for Five Years

Slight additional cost, superior to Copper Floats

Ask Your Jobber

The Cooper Foundry Co.
Atchison, Kansas

SQUARE "GEE" FITTINGS
Malleable Iron Pipe

You can identify Square "Gee" Fittings by the Square G stamped on every fitting. Another way is by the deep, smooth countersinking.

THE GRABLER MANUFACTURING CO.
CLEVELAND, O.

of the master plumbers' time in San Francisco, it is hoped that they will soon be in a position to put over a real Bath a Day campaign.

CALIFORNIA COAST COUNTIES REPORT SUCCESSFUL MEETING.

The meeting of the Coast Counties Association of Master Plumbers, held at Pacific Grove on June 24th, was an event both profitable and pleasurable. The meeting was called to order by Ed. Simpson, the president. In attendance were about ten representatives of San Francisco. Among the attendants were Wm. Goss, president of the San Francisco Association, and Harry Newman, of Oakland, both members of the State Executive Board. Saturday evening, the business meeting was followed up by an elaborate banquet and entertainment. The next day the guests were given an enjoyable outing along the beautiful ocean shore drive, taking in El Monte, Carmel, Monterey, and other points of interest.

"DO YOU REMEMBER WAY BACK WHEN—?"

"The world do move," and sometimes we meet a stalwart old character that moves right along with it. Such is John L. E. Firmin, the man who has been trusted at the head of the San Francisco Master Plumbers' Association for some 40 years. And he tells some weird and withal comical tales of the plumbing business of Ye Olden Days, when the largest enterprise in San Francisco was moving sand hills. In those "Good Old Days" a large percentage of the contracting business was done in the saloons. These were liberally equipped with card rooms, in part for this very purpose.

The most famous of these was Phil. McGarben's place, located on Market Street, where the Chronicle Building now stands. Here most of the business of the association was consummated, and in a very informal manner. As the saloon could not afford to furnish accommodations without an income, it was very customary to open a meeting with "Well, boys, what will it be?", and a regular part of the program following was: "Well, boys, what will it be next?" All this did not get into the minutes. But the list of expenditures filed for meetings of the association and of committees always included from $2 to $20 for incidentals.

It is no wonder then that when a modest little account for "weeners and coffee" comes in, Mr. Firmin is impressed with the contrast between the prosaic and business-like present, and the more hilarious and picturesque though unbusinesslike past. For today the association holds its regular meetings weekly in regular and systematic business form, discusses small and far-reaching problems thoroughly, and meets in well-appointed halls. It keeps its office open constantly; and to its social functions come the wives and families, that all may make merry together.

RADIO HEALTH HINTS.

The New York State Department of Health is sending out by radio a series of five-minute health talks. The talks are broadcasted every Friday evening from the radio station at Schenectady, through the co-operation of the General Electric Company.

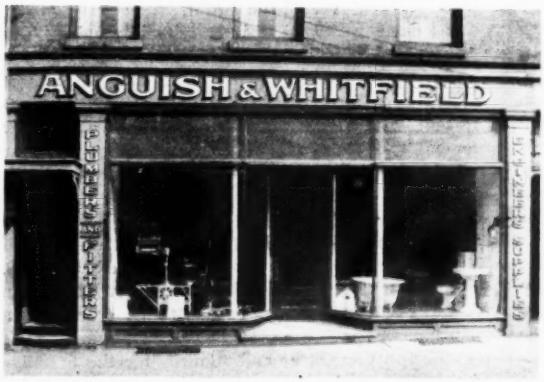
The fourteenth talk was on "Keeping Well in Hot Weather." Besides telling about what to eat and drink and how to sleep, the talk said, "A daily bath keeps the pores open." It is necessary to keep the pores open on warm days in order that the sweat glands may act freely. "For," continued the talk, "when the weather is hot the surface blood vessels are expanded and the sweat glands bathe the body with perspiration." This perspiration should be washed off every day.

CANADIAN BUILDING SHOWS GRATIFYING INCREASE.

Building in Canada during May surpassed the activity of May, 1921, according to statistics complied by Maclean Building Reports Limited. The total in May this year (construction contracts actually awarded) was $34,827,300 as compared with $29,428,400 last year. This is the second highest monthly figure on record since 1914. Residential building accounted for forty-five per cent of the total and amounted to $15,633,500. Business building amounted to $11,516,000 or 33.1 per cent; industrial building, $801,500 or 2.46 per cent; public works and utilities, $6,876,300 or 19.5 per cent.

ONTARIO CONTRACTORS HAVE ATTRACTIVE SHOP.

The new plumbing shop of Anguish & Whitfields at Brantford is said to be one of the finest in Ontario, equipped and arranged up to the last minute. The front shop is spacious, well arranged and not overcrowded and the "silent



The Plumbing and Heating Establishment of Anguish & Whitefield, at Brantford, Ontario, Canada.

salesmen" have a good chance to sell goods. The shelves for brass goods are well stocked and arranged to display them to the best advantage.

The two partners first started business in 1902, building up a good trade, but in 1906 the call of the west got the best of them and they went to Winnipeg and started at journeyman work; Mr. Whitfield worked through to the coast in Canada back to Toronto and Kitchener then home to Brantford.

Mr. Anguish worked in Port Arthur, Fort Francis, Hibbing,

The Showroom of Anguish & Whitefield, at Brantford, Ontario, Canada.

"Burlington"
Self Closing Work

No. 31

A Self Closing Basin Cock Must be Tested Under Actual Operating Conditions To Prove **Superiority**

We want you to make your own tests and we know you will secure absolute satisfaction.

Also made in Sink Bibbs, etc.

Burlington Brass Works
Burlington, Wis.

THE PENN VISE POST and PIPE BENDER

Pays for Itself Every 60 Days
Easily Handled
Made in Two Sizes

If your Jobber does not have it, write us and give us his name, or we can supply you direct

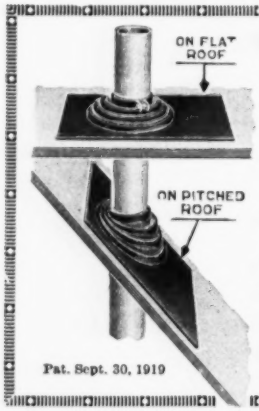
Made by

Penn Engineering Co.
Reading, Pa.

Pacific Boilers are Easily Installed

ENGINEERING feats are not necessary to install Pacific Steel Boilers in old or new buildings. The shell is easily detached from the firebox. An opening large enough to admit the firebox is all that is necessary.

General Boilers Company
Waukegan, Illinois



RETLAW TELESCOPIC ROOF FLANGE

A One-Piece Lead Flange, 4 Lbs. to Square Ft.

Drawn into circular corrugations.
Extremely pliable—no seam.
Allows for settling of roof or pipe.
Adjustable to any angle.
Allows for contraction and expansion.
Collapse one side—draw out other.
Draw up band, compressing lead around pipe.
On like a flash—costs less than hand made.
Ask your jobber about them or write us for particulars.

THE HARKER MFG. CO.
123 W. Third St. CINCINNATI, OHIO

Hanna Ball Joint Pipe Hanger

Guaranteed Strongest Made

The "Ball Joint" Pipe Hanger swings in any direction. Pipe can be adjusted higher or lower without removing hanger.

Made of malleable iron.

Write for "Our Silent Salesman"

The Penn Engineering Co.
312 Cherry Street, Philadelphia, Pa.

A Good "Sales-Clincher"

OFTEN, when a heating plant sale is in doubt, the Minneapolis Heat Regulator saves the sale. It positively insures a better heated home at lower fuel cost. Should be installed on every heating system. The logical time is when you install the system. Sell the job complete.

Quickly installed on any type of heating plant using any kind of fuel.

MINNEAPOLIS HEAT REGULATOR CO.
2801 Fourth Ave. So.
Minneapolis, Minn.

St. Paul, Minn., Spokane, Portland and Seattle, Wash. In 1911 they started again, using the knowledge they had acquired in traveling and they have built up one of the best businesses in Ontario. At present they have contracts for a summer hotel at Point Dover, a summer cottage on Lake Simcoe, a large heating job in Toronto and two suburban residences.

VANCOUVER, B. C., CONTRACTORS EFFECT SATISFACTORY AGREEMENT WITH UNION.

Negotiations extending over a considerable period of time have resulted in a wage agreement between local plumbing firms and their employes, being effected. Under the old arrangement the rate was one dollar an hour but the new agreement calls for ninety cents an hour. It will be in effect until May 1, 1923. The satisfactory termination of the negotiations has had a steadying influence on local activity.

Local firms report the trade only fairly busy, though on the whole as good as last year, although it is pointed out that the volume of work under way is not a conclusive indication as steadily-maintained high prices are resulting in many jobs being at very little profit.

Weeks & Company reported main activity in repairs. The prices of materials were being strongly maintained. Enamelware took a drop of about 10 per cent only to almost immediately advance again to former quotations. The situation at present is very unsettled, it being stated that the new wage agreement was about the only definite thing just now in the trade. But indications were that a boom of some extent would come in the fall—probably in August.

Building permits foreshadow an active July. During the first three weeks of June, applications for the erection of seventy homes, were filed. The value totalled $300,000. Recent permits include the erection of a new Lutheran church. A three-story office building is to be erected at a cost of $70,000.

Total permits for Vancouver and suburbs for the first five months of the year total $4,074,850; an increase of $270,315 over the same period in 1921.

The Vancouver Sewer Board is considering the flotation of a $600,000 bond issue to finance the construction of new sewers throughout the newer sections of the City.

Master plumbers in Vancouver must in future pass an examination test set by the city. After seven years' effort a by-law has been adopted by the City Council which places all plumbers (both journeymen and masters) under a license system.

Other Cities in British Columbia.

At South Vancouver permits for May included the construction of forty-two new residences. The total number of permits was 111. The aggregate value was $66,070. During the month, fifty-four plumbing permits were issued; and permits for forty-one new water connections. Plumbing fees amounted to $171.75; water connection fees, $615.

At New Westminster, in May, building permit figures of 1921 were surpassed. The permits this year totalled $23,200; last May, $13,852.

At Ioco, twenty-five houses are to be erected at once. Sixty were built last year.

At Burnaby, the School Board has approved plans for the erection of a new High School, tenders for which will be called at once.

At Kerrisdale, construction of seventy-six new dwellings was begun during the month. Total permits issued totalled ninety-two, and the total value, $347,000.

At West Vancouver, it has been decided to spend $31,000 on the extension of schools.

The Point Grey Council has been requested to install a new heating and ventilating plant in the school there at a cost of $12,000. The application came from the School Board and is being considered.

COMPARISON OF PRESENT WAGES OF STRIKING RAILROAD WORKERS WITH THOSE PAID BEFORE THE WAR

The following analysis of wages of railroad workers, in accordance with the wage cut recently ordered by the United States Railroad Labor Board, will no doubt be read with interest by many of "Domestic Engineering's" readers, now that so many railroad employes are on strike:

An analysis of the wages of railroad employes by the National Industrial Conference Board, 10 East 39th Street, New York City, shows that the wage cut recently ordered by the United States Railroad Labor Board leaves the four main classes of men affected with an economic status which is nearly 19 per cent higher than their position in 1914.

Of the four classes affected, the car men stand at the top of the list with an increase of purchasing power of 33 per cent, over the 1914 level, followed by unskilled labor, whose increase amounts to 19 per cent; that of the clerks 13 per cent, and of skilled shop mechanics.

The study also demonstrates that even after the new wage cuts go into effect railroad employes will still constitute a preferred class of industrial labor, as their increase in real earnings and their actual money wages are still materially above the real wages and actual wages paid to employes of other industries performing a similar class of service.

The Conference Board's statement, made public this week, is as follows:

The majority of railroad employes whose wages were reduced after July 1st by order of the United States Railroad Labor Board are included in the shop forces, the track laborers, the clerks and the signalmen. Various other classes, such as the stationary firemen and oilers have also had their wages reduced by the Labor Board's decision, but these form only a small percentage of the total number of railroad employes.

The shop forces include two main classes of employes, the skilled mechanics or the so-called locomotive crafts, comprising the machinists, blacksmiths, boilermakers, sheet metal workers and electrical workers, and the car men, whose duty it is to repair freight and passenger cars. The bulk of the car men are engaged in the repair of freight cars. The maintenance of way employes include, besides track laborers, a number of skilled mechanics, but as these mechanics are paid at the same rates as the mechanics in the shop crafts, unskilled labor only was taken account of by the board in making the present estimates. The same applies to signal men, who are chiefly electrical workers or unskilled laborers.

The skilled mechanics of the shop crafts have had an average working week of 48.06 hours since the signing in 1919 of the National Agreements defining the working conditions of this group of employes. Their rate of pay up to the present time has been $0.77 an hour for journeyman mechanics not engaged in autogenous welding, the autogenous welders receiving a differential of $0.05 per hour in addition to the regular mechanic's rate. The recent decision of the Labor Board cut the rate of skilled mechanics $0.07 per hour, making a new hourly rate of $0.70. It is fair to assume that the average number of hours of employment per week will not be less after July 1st than it has been during the past two and one-half years, and for the purpose of estimating the earnings of skilled shop mechanics under the wage cut, 48.06 hours have been taken as a basis. At this rate, skilled mechanics will receive pay for 48 hours at $0.70 cents plus .06 of one hour overtime at time and one-half, making their average weekly earnings $33.67 per week. This makes their average hourly earnings after July 1st, $0.701. The average weekly earnings of this class of employes in 1914 was $19.73, which indicates a net increase over 1914 of 71 per cent in estimated average weekly earnings after July 1st. The average hourly earnings of this class were $0.385 in 1914,

WE MANUFACTURE the only perfect Back Water, Sewer and Tide Trap on the market. The Barrett Trap is warranted and guaranteed.

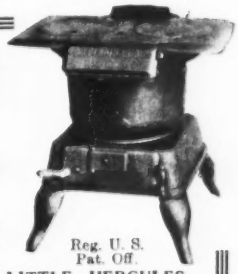
James Barrett Mfg. Co. 115-121 Pearl St. Boston, Mass.

A LEAD Product *for* Every LEAD Purpose

Lead Pipe—Lead Wool
Lead Tubing—Lead Roof Flanges
Lead Spun Acid Bottles—Refined Caulking Lead
Plumbers Lead Fittings—Bar Ribbon Ingot Lead
Bar Tape Wire Solder—Babbitt and Type Metals
White and Red Lead—Block Tin Pipe
Bar and Pig Tin—Pig Lead

THE EAGLE-PICHER LEAD CO.
JOPLIN CINCINNATI CHICAGO

HOT WATER as a BY-PRODUCT
Capacity 90 Gallons
Little Hercules Laundry Stove
with its deep corrugated fire pot is the only heater that can do it.
Patented Hopper Feed Door.
Catalog on request



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LITTLE HERCULES
Supplied through Jobbers

CONTINENTAL BRASS AND FOUNDRIES CO.
St. Louis, Mo. Belleville, Ill.
Western Distributors of Richardson Vapor Vacuum Heating System

13 *is a Lucky Number for the man who sells or uses* POWERS REGULATOR No. 13

Especially designed for automatic control of Tank Heaters and Garbage Burners.
Easily installed. Self-contained. Safe. Durable.
Get Our Bulletin 136

THE POWERS REGULATOR CO
Specialists in Automatic Heat Control
2716 Greenview Ave., CHICAGO NEW YORK BOSTON TORONTO
(1712) Offices in 23 Other Cities. Consult Your Telephone Directory

Business Established 1842

Rider-Ericsson Engine Company

Succeeding { Delamater Iron Works / Rider Engine Co.

Pumping Machinery

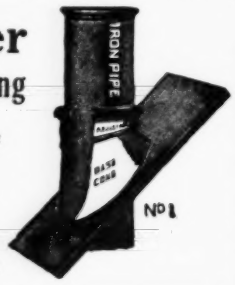
Centrifugal — Pneumatic Systems
Deep Well — Condensation
Automatic Sump — Gasoline and Kerosene
Hot Air

Founders and Machinists

Sales Offices in Principal Cities
Some Good Territory Open for Live Representatives
Executive and Sales Office: 20 Murray Street, N. Y. C.

The Hessler Adjustable Roof Flashing

The very best one made
All sizes, 1¼" to 6"
The Plumbers Know
Millions in Use



Write for particulars today

H. E. Hessler Co. *Sole Manufacturers* SYRACUSE, NEW YORK
Former Manufacturers of the McGuire

The Hotstream WATER HEATER

KEROSENE HEATER WICK BURNER TYPE

An economical, safe, convenient Hotstream Heater that furnishes constant hot water for domestic use, day and night. Noiseless, smokeless, odorless, no generating. Burns 19 to 30 hours per gallon. Wick requires no trimming. Sells and satisfies because it's right.

We also make kerosene heaters with gravity and pressure burners.

Have you our Catalog and Price Sheet covering our complete line of popular priced heaters? Write today.

LET'S GO!

THE HOTSTREAM HEATER COMPANY, Cleveland, Ohio
"Makers of Heaters That Heat"

Burman "Unit" Laundry Faucet

Simplest, Most Convenient and Least Expensive Faucet Made

Supplies hot, cold, or temperate water to either tray by slight movement of spout. Only two valves instead of four faucets. Saves its price by eliminating pipe and fittings. Clamps securely to back of tray.

Easy to install. Makes a neat job.

Write for prices. Now for sale by most jobbers

BURMAN SPECIALTY CO.
1908 Lincoln St. N. E., Minneapolis, Minn.

making the increase over 1914 of the estimated new earnings 82 per cent. The index of actual hourly earnings divided by the index of the cost of living, which was 154.9 on June 1st and which will probably change but slightly in the next few months, gives an index of real earnings or purchasing power of actual earnings, based on the average hourly earnings, of 118, and based on the average weekly earnings, the real index is 110. In other words, the economic status of the skilled mechanics of the shop forces when expressed in purchasing power is 10 per cent higher than in 1914.

For the car men, computing the figures in the same manner, it is found that since the signing of the National Agreements reducing the working hours, the average number of hours of employment per week is 48.59. Thus, car men whose rate has been reduced $0.09 from the present rate of $0.72, will have average weekly earnings of $31.15, which is a 106 per cent increase over the average weekly earnings of $15.09 in 1914. Their average hourly earnings of $0.641 under the new rate show an increase of 150 per cent over the 1914 average hourly earnings of $0.256. Their real earnings after July 1st based on their average hourly earnings will, therefore, be 61 per cent higher than in 1914, and based on their average weekly earnings, 33 per cent higher than in 1914.

The average number of hours of employment per week of unskilled labor since the signing of the National Agreements has been 49.86. The rate of pay of unskilled labor varies somewhat from one part of the country to another, and in the case of negro labor in some of the southern states, was as low as $0.28 per hour before the decision rendered by the Labor Board. However, the rate paid to unskilled white laborers in the northern and western states, including the great majority of the railroads of the country, has been $0.40 per hour. This rate, reduced $0.05 per hour by the Labor Board's order, will therefore be $0.35 per hour after July 1st. Working 49.86 hours per week, the average weekly earnings of unskilled labor will therefore be $17.45 per week, which is an increase of 85 per cent over the 1914 earnings. The decision rendered by the Labor Board on December 16, 1921, while recognizing the principle of the eight-hour day, provided that track laborers should be paid overtime only after the expiration of the tenth hour of continuous service. The 1.86 hours over the regulation 48-hour week cannot therefore be computed at time and one-half in figuring the weekly earnings of this class of employes. The average hourly earnings will therefore be $0.35, or the same as the hourly rate of pay. This shows an increase in actual hourly earnings of 117 per cent over the average hourly earnings of $0.161 in 1914. The real earnings based on the average hourly earnings show an increase of 40 per cent; while real earnings based on average weekly earnings show an increase of 19 per cent.

The clerical forces of the railroads since the Clerks' National Agreement was signed early in 1920 have worked an average of 48.18 hours per week, and, as is the case with unskilled labor, the .18 extra hours over the regulation 48-hour week cannot be computed at time and one-half because of the decision of the Labor Board of January 22, 1922, which ordered that clerical forces should not be paid overtime until the expiration of the ninth hour of continuous service. No definite rate can be established for all classes of clerical employes, but their average hourly earnings in October, 1921, were $0.618. The reduction of the Labor Board, which has just been ordered, equals $0.03 for some classes of clerks, and $0.04 per hour for other classes, or an average reduction of $0.038, which will make the average rate per hour of all classes of clerks $0.58 after July 1st. This is an increase in actual hourly earnings of 97 per cent over the 1914 rate and the real earnings of clerks based on their average hourly earnings will therefore be 28 per cent over the 1914 level. Working 48.18 hours per week, the average weekly earnings of clerks will be $27.94, an increase of 74 per cent over 1914.

Computed on the basis of average weekly earnings, their purchasing power will have increased 13 per cent.

Thus, the average increase in purchasing power based on weekly earnings of the four classes is 18.75 per cent over the 1914 standard. The car men stand at the top of the list with an increase of 33 per cent, followed by unskilled labor, whose increase is 19 per cent, the clerks and unskilled shop men coming next with increases of 13 per cent and 10 per cent, respectively.

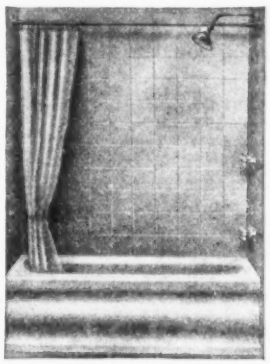
Although comparisons of wages of railroad employes with employes in other industries cannot be made for all classes, and the latest reports of the National Industrial Conference Board on wages of employes in manufacturing industries do not give data for later than January 1, 1922, it is interesting to compare the wages of railroad skilled shop labor with those of the skilled employes of foundries and machine shops, who perform practically identical services. Thus we find that while the average hourly earnings of railroad skilled shop employes under the new wage cut will be $0.701, those of employes in the foundry and machine shop industry stood at $0.561 on January 1st, and the comparative average weekly wages stood at $33.67 and $25.08 for railroad and foundry and machine shop mechanics, respectively. The increase in real weekly earnings of foundry and machine shop employes over the 1914 level was only 5 per cent as compared with a 10 per cent increase for the railroad employes.

The same is true with regard to unskilled labor outside the railroad industry. The National Industrial Conference Board's studies show that the average hourly earnings of unskilled laborers in other than the railroad industry were $0.414 as compared with $0.35 for railroad labor on January 1st, and the average weekly earnings of unskilled manufacturing labor were $19.04 as compared with $17.45 for railroad common labor. While real earnings for unskilled railroad labor increased 19 per cent in the eight-year period, those of unskilled labor outside of the railroad industry increased only 9 per cent. These increases are figured both for the railroad industry and for outside industries on the basis of the Conference Board's cost of living index for June 1, 1922, which shows that the cost of living at that time was 6.6 points lower than on January 1st.

The figures given above must be considered as very conservative estimates of earnings of railroad employes under the new wage cuts, as the average number of hours of employment per week will probably go above the figures given with an increase of railroad traffic such as may very reasonably be expected in the course of the next few months. This is particularly true in the case of unskilled labor, whose earnings are always greatly increased during the months from May to October, inclusive, when the great bulk of repairs and new construction is performed on the railroads.

It is evident that neither from the point of view of the purchasing power of their present earnings as compared with those of 1914, nor from a comparison with the wages paid to similar classes of employes in other industries, have the classes of railroad employes whose wages have been cut any real justification from a wage point of view for tying up the transportation of the country by a strike. For railroad employes can still be fairly considered as a preferred class among the industrial employes of the country, both from the point of view of actual wages paid and in the continuity of their employment, which is very little subject to seasonal fluctuation. In taking into consideration the real earnings of the various groups of employes, it would also be well to bear in mind that due to the action of the workers themselves their hours of employment per week have decreased on an average 7.5 hours during this period. In spite of this fact, their average purchasing power has increased 18.75 per cent.

If it's funny, send it to "Pipe Lines."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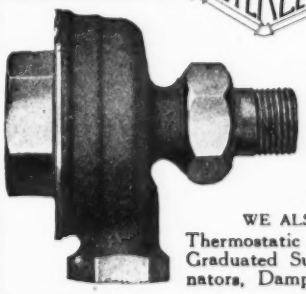

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Vertical seat.
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Steam tight.

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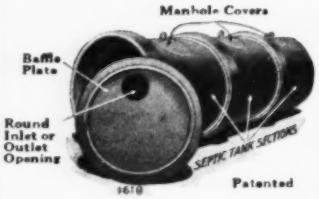

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No forms, bolts, or reinforcing to complicate the work.

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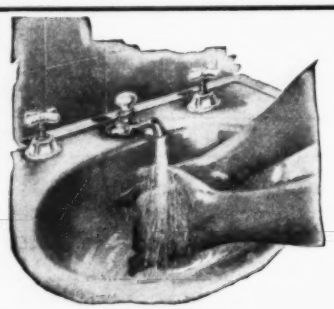

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The Overton Roof Flashing makes a joint both air and water tight, on any roof from flat to half pitch.

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Horizontal Tanks—from 30 in. by 6 ft. to 42 in. by 14 ft.

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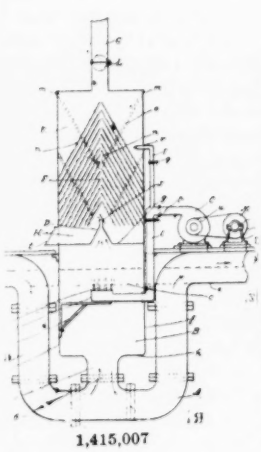
Hamburg, Berks Co., Pa.

We also manufacture Steam Boilers, Hot Water Boilers and Plate Steel Drums

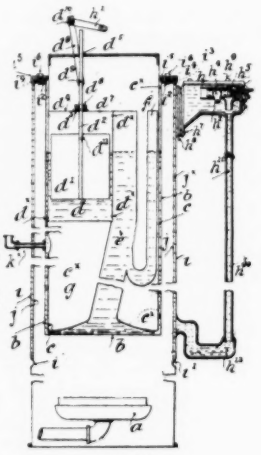
Patents

Plumbing Department.

1,415,007. Sewage Purifier. John P. Ball, Chicago, Ill. In sewage purifiers and similar devices, the combination with a casing having an upper condensing chamber and a lower sludge collecting chamber, said lower sludge collecting chamber being located in a pit below the surface of the sewage and containing a plurality of forced air passages, said condensing chamber containing a series of baffle screens, means for creating a sludge laden air current and means for condensing suih sludge laden air current on said baffle screens.

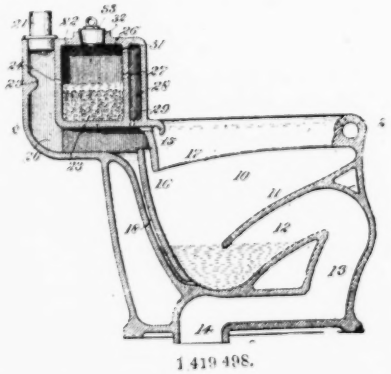


1,415,007



1,415,343.

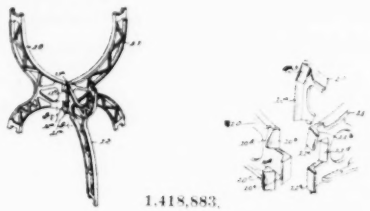
1,415,343. Water Heater. Harold Hargreaves, Burnley, England. In a water heater, a heating device, a chamber wherein the water is boiled, and a second independent chamber wherein the boiled water is collected, the boiling water being forced by steam pressure from the boiling chamber to the second independent collecting chamber, and automatic means for feeding water to the boiling chamber.



1,419,498.

1,419,498. Sanitary Flush Bowl. Alexander D. Grant, San Jose, Calif. In combination with a closet bowl of the type having a hollow rim at its top and a water trap or seal at the bottom and a water conduit for supplying flushing water to the rim and other parts of the bowl, a receptacle to contain a solid, soluble chemical interposed in the water conduit having its lower portion entirely closed, said receptacle hav-

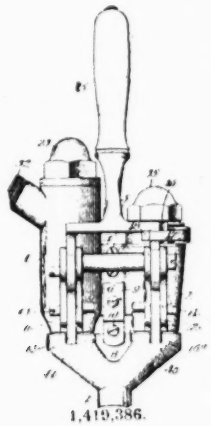
ing opposed inlet and outlet openings near its upper portion to allow a portion of the incoming flushing water to be directed through the receptacle and thereafter join the main body of the flushing water before entering the rim and bowl.



1,418,883.

1,418,883. Range-Boiler Stand. Adolph Scheid, Auburn, Ind. A tripod stand comprising separable members having interlocked intercurrent tongues provided with ears having opposed under-cut faces jointly forming a seat, and a further member having a key insertable from below and movable vertically to engage said seat.

1,419,386. Combination Faucet. Henry D. Kelly, Kansas City, Mo. The combination of a pair of faucets having supply ports, yieldingly closed valves between the respective supply ports and discharge ends of the faucets, a lever for opening



1,419,386.

the valves, means for closing communication between one only of the valves and the supply port therefor before the opening of said valve is effected, and means for locking both valves open and the communication-closing means in closed position.

Tenant Obligated to Make Repairs.

The Supreme Court of New York, Appellate Division, Second Department, in unanimously affirming, with costs, a judgment in favor of the plaintiffs in the case of Facopoulos et al. v. Levenson, 193 New York Supplement, 61, simply says that the covenant "to keep the plumbing and heating plant in good repair" obligated the tenant to make repairs, even though the condition of the plumbing and heating plant at the commencement of his term was bad.

Rule as to Representations Constituting Actionable Fraud.

The general rule is that representations of facts that will exist in the future, or which are promissory in their nature, though false do not afford the basis of actionable fraud. To constitute actionable fraud in the sale of property the representations must be of existing facts relating to the subject-matter of the contract made by the seller as an inducement to the contract, and such representations must be false and relied upon by the buyer in making the purchase to his damage.—Supreme Court of Arkansas, in Bankers' Utilities Co. v. Savings & Trust Co., 237 Southwestern Reporter, 707.

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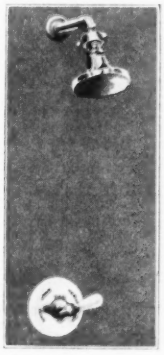

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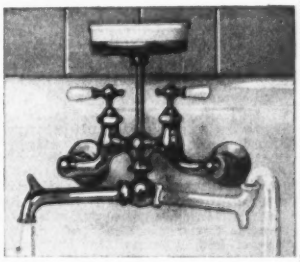

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TIME SHEETS, JOB TICKETS, ESTImating blanks, etc., for plumbers. Small or large lots. Reasonable. Samples and prices free. Prompt service. Louis Fink & Sons, Inc., Laurel Springs, N. J. 7-30 tf

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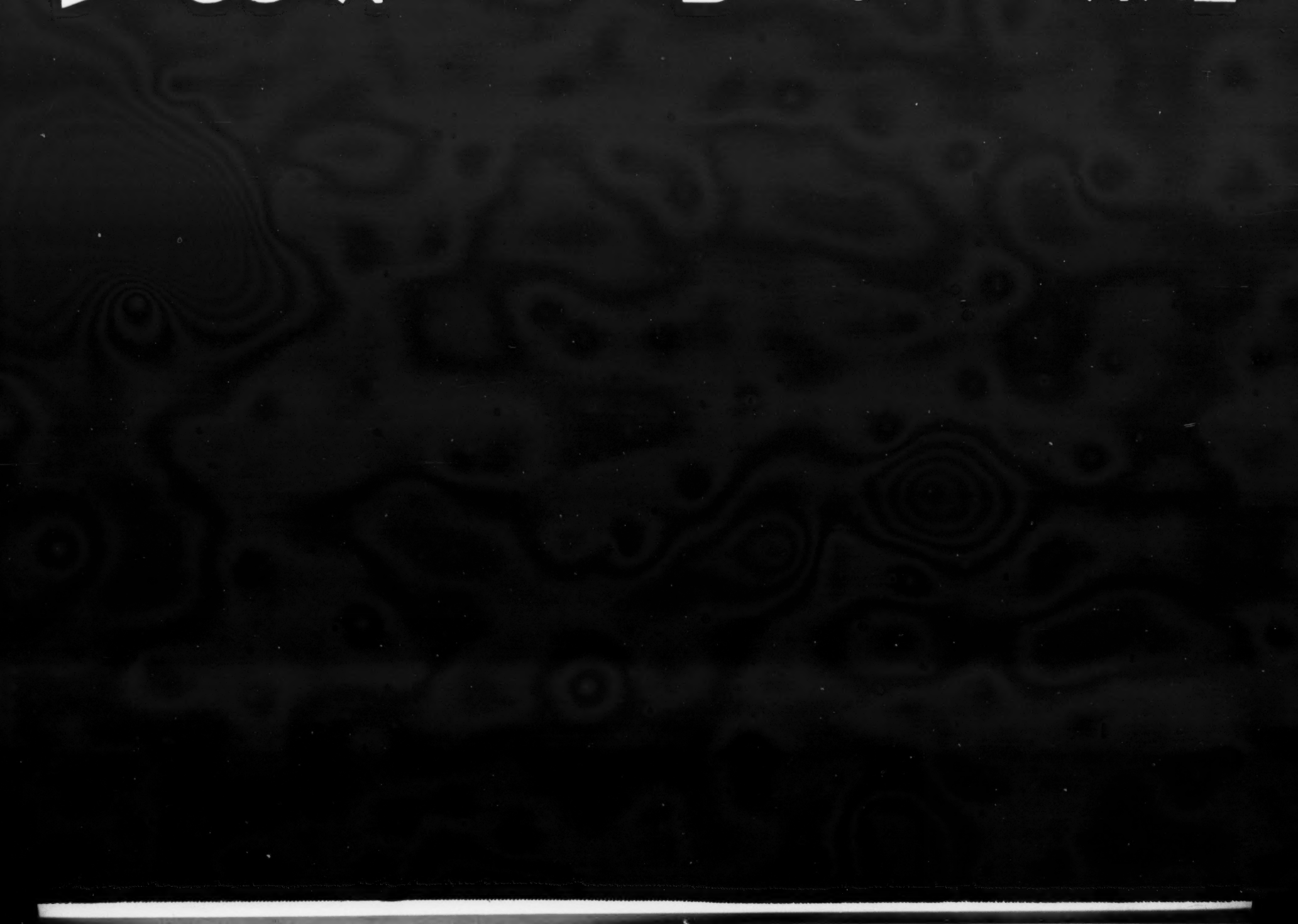
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